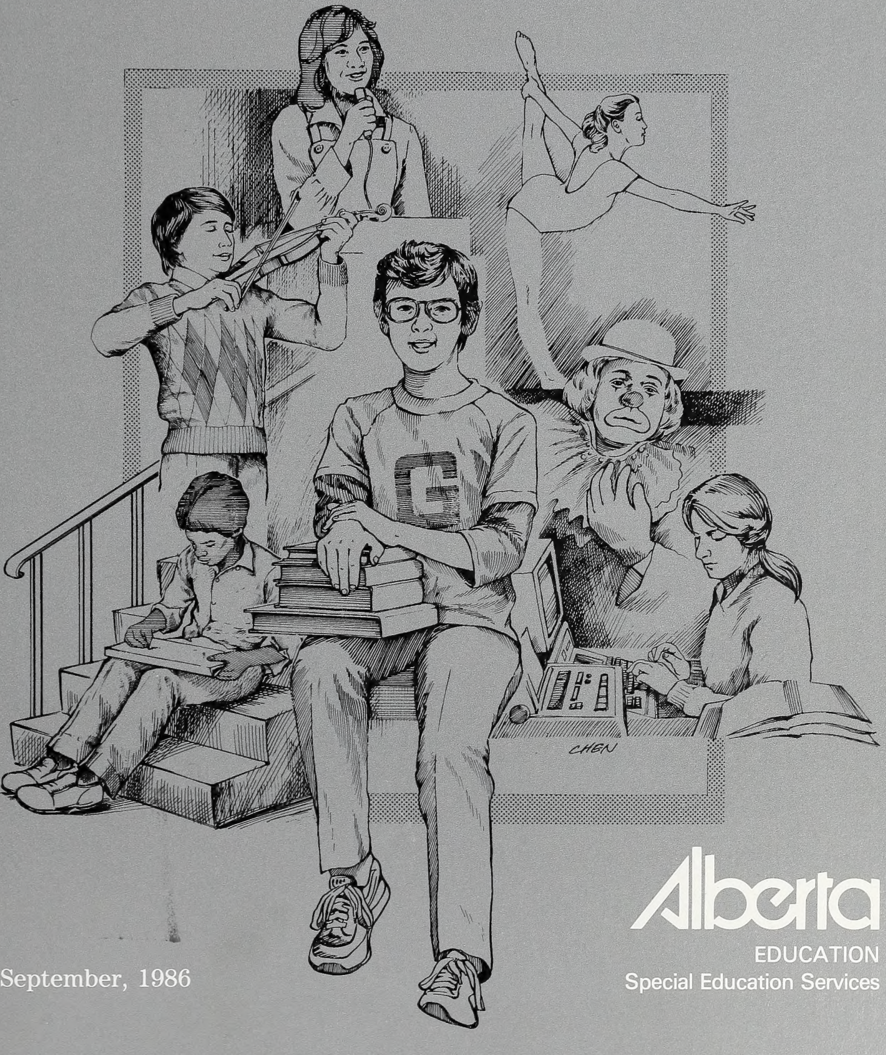
EDUCATING GIFTED AND TALENTED STUDENTS IN ALBERTA

A Resource Manual for Teachers



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EDUCATION
Special Education Services

September, 1986

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Foreword

Alberta Education recognizes the importance of providing appropriate programs and/or services for gifted and talented students. One of the major recommendations of the Minister's Task Force on Educating Gifted and Talented Pupils in Alberta (1983) was the development of a publication that would assist school personnel in the education of gifted and talented students.

This manual is intended to be useful to several groups of readers such as teachers, school administrators, school trustees, and parents.

The manual is organized into five chapters with a reference section and appendices. Each chapter contains an overview and checklist which serve to summarize the chapter's content. Figures, tables and flow charts are provided to summarize significant aspects of content.

Chapter One introduces key concepts in the education of gifted and talented students. Goals, definitions, characteristics, needs, and myths are presented as they relate to giftedness. This chapter establishes a Gestalt for the reader to assist in understanding the subsequent chapters.

Chapter Two deals with significant factors in planning and implementing a program/service at the local school and jurisdictional level. This chapter provides an array of ideas for program planners and lists of relevant resource materials for teachers and parents.

Identification of the gifted and talented is the subject of Chapter Three. It presents general identification procedures including those useful for the difficult-to-identify gifted student.

Chapter Four isolates nine key curricular or teaching areas that are considered to be significant for enrichment or gifted education. Selected curriculum models and the importance of providing guidance and counselling services to the gifted and talented are discussed.

Evaluation is the focus of Chapter Five. It presents methods and ideas to evaluate program design and student progress.

The appendices contain suggested tests, selected annotated bibliography, sample questionnaires, and relevant films.

Finally, this manual is the product of the collective thinking of many committed educators in Alberta who have had extensive experience in working with gifted and talented students. Comments regarding the manual would be welcome and should be addressed to Director, Special Education Services, Devonian Building, West Tower, 11160 Jasper Avenue, Edmonton, Alberta T5K 0L2.

Garnet Millar

"Every good school program must have an appropriate balance between the challenge of striving for excellence and the chance for success."

Review of Secondary Programs Report of the Minister's Advisory Committee: Foundations for the Future, Alberta Education, January 1985, (Page 39).

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The following materials have been reprinted with the permission of the authors:

- Autonomous Learner Model, George T. Betts, Ed. D. (p. 4-28)
- Cognitive-Affective Interaction Model, Frank E. Williams (p. 4-29)
- Manifesto for Children, E. Paul Torrance (p. 1-15)
- Model of Giftedness and Enrichment Triad Model, Dr. Joseph F. Renzulli (p. 1-6, 4-27)
- Taylor's Talent Totem Poles, Dr. Calvin W. Taylor (p. 4-26)

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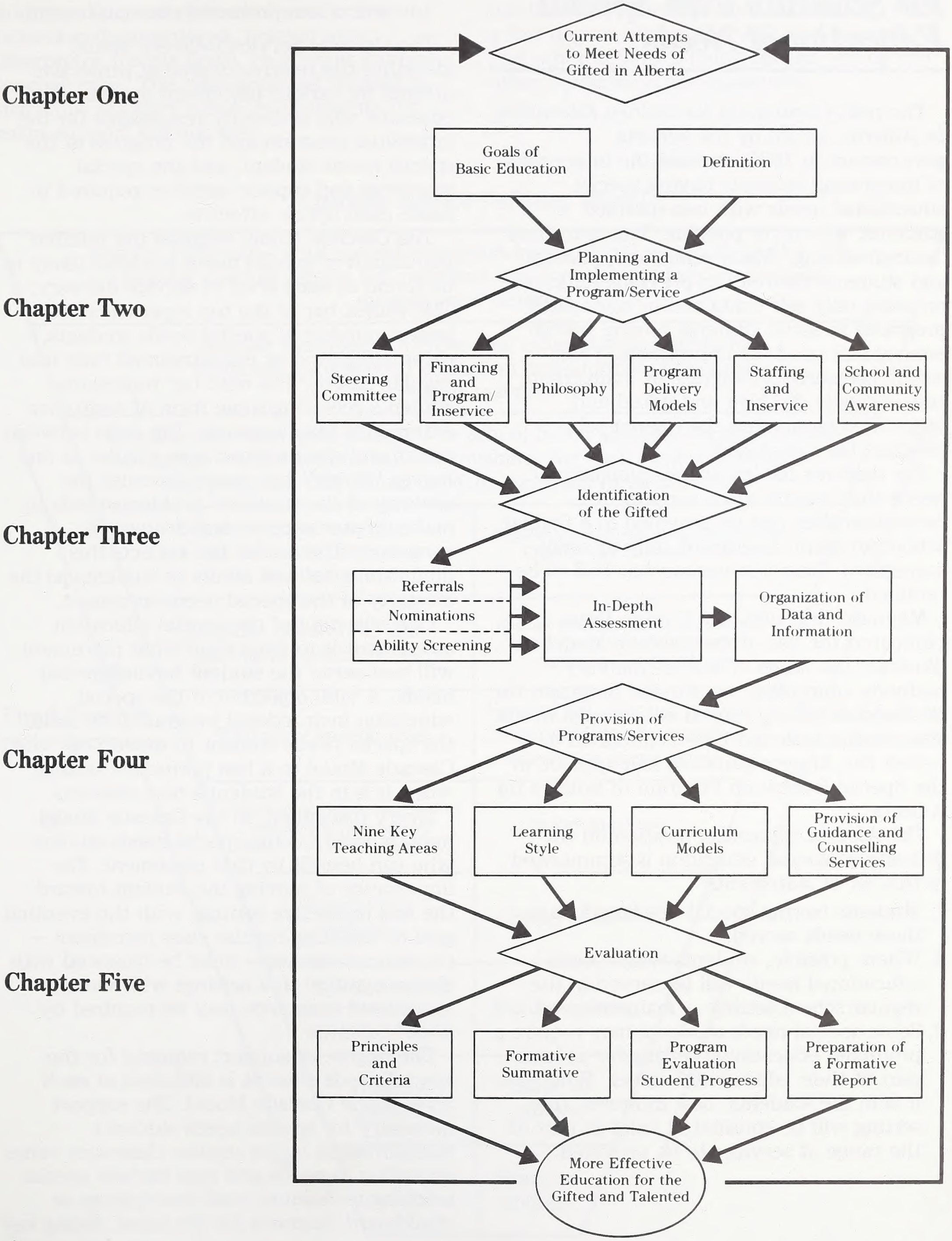
Comprehensive Overview of Key Components of Educating Our Gifted and Talented Students in Alberta: A Flow Chart



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Steering Committee
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Placement Alternatives for Students with Special Educational Needs

The policy statement *Secondary Education in Alberta*, issued by the Alberta government in 1985, stresses the importance of integrating students having special educational needs with non-disabled students, whenever possible. This is termed 'mainstreaming.' Many educators, parents, and students viewed the previous reliance on using only self-contained or segregated programs to serve students having special educational needs as undesirable. Thus, strong pressure to integrate or mainstream educationally disabled and gifted and talented students into the regular school program has developed.

For students having special educational needs that require more support or protection than can be provided in a regular school program, a series of fully or semi-segregated classroom options has had to be retained.

Maynard Reynolds and Evelyn Deno pioneered the use of the Cascade Model to illustrate the range of service delivery methods appropriate to provide programs for all students having special educational needs. The version included here is modified to reflect the Alberta situation and appears in the Special Education Program of Studies for Alberta.

The Alberta Education position on the delivery of special education is summarized in this set of statements:

1. Students having special needs will have those needs served.
2. Where possible, students with special educational needs will be served in the regular school setting — mainstreamed.
3. Some special needs students may require a protected educational setting for at least part of their educational career. Whenever it is in the students' best interests, this setting will be considered valid as part of the range of services to be provided.
4. Whenever it is in the best interests of the special needs students, they will be moved from a more protected educational setting towards a less protected class placement.

The Cascade Service Delivery Model identifies the relative degree of protection offered by various placement options, the educator who is directly responsible for the individual program and the progress of the special needs student, and the special resources and support services required to make each option effective.

The Cascade Model suggests the relative population of special needs students likely to be found at each level of service delivery. The widest bar at the top represents the largest number of special needs students, those integrated or mainstreamed fully into regular classes. The next bar represents students receiving some form of assistance external to the classroom. The ratio between adults and students becomes smaller as one moves "down" the model, because the severity of the students' problems tends to make greater support and protection necessary. The model also reflects this diminishing ratio of adults to students as the intensity of the special needs increases.

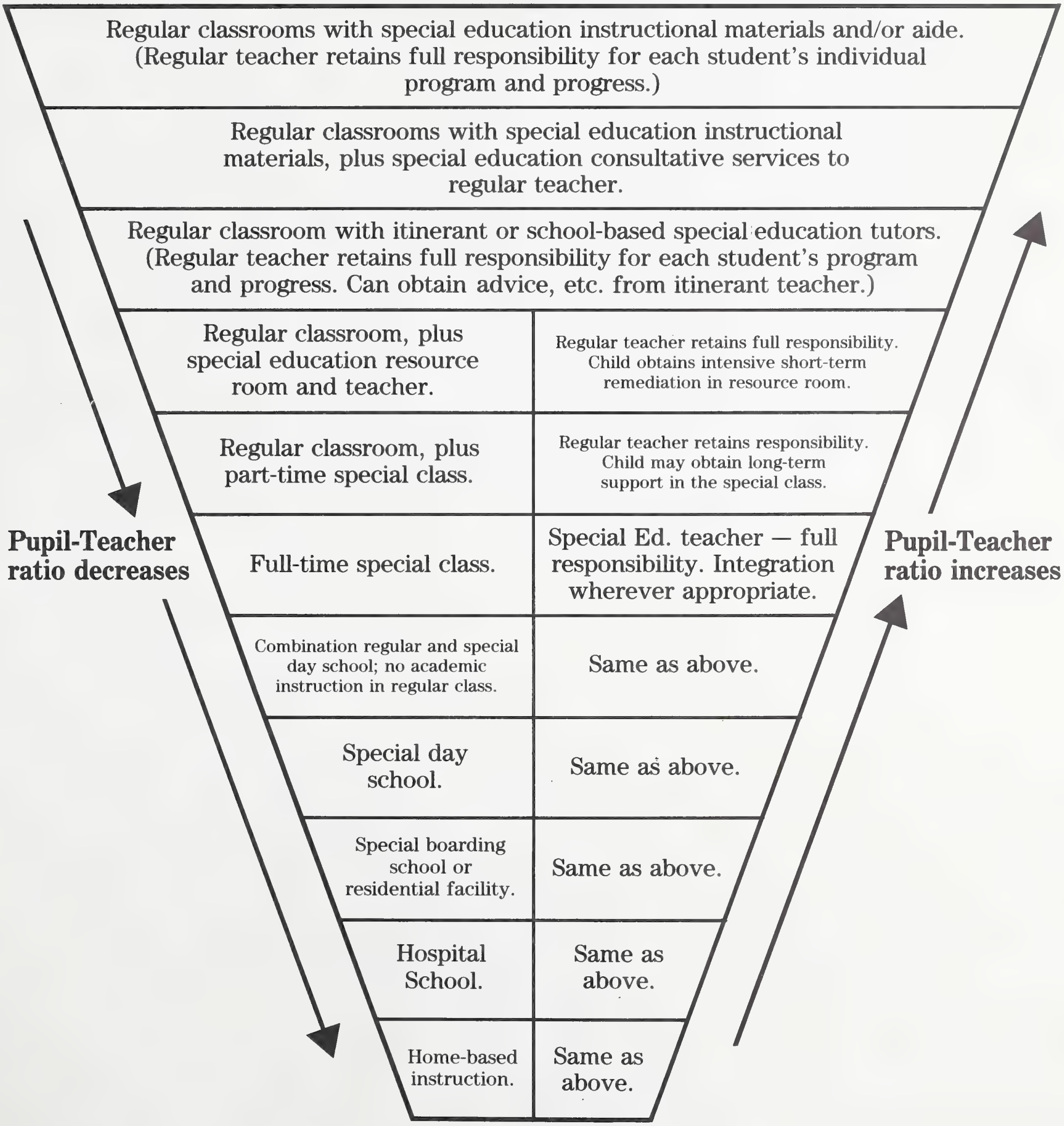
One objective of the special education assessment is to determine what placement will best serve the student having special needs. A vital objective of the special education instructional program is to assist the special needs student to move "up" the Cascade Model to a less protective setting, when it is in the student's best interests.

Every placement on the Cascade Model may be valid for the special needs student who can benefit by that placement. The importance of moving the student toward the less protective settings with the eventual goal of attaining regular class placement — i.e. mainstreaming — must be balanced with the recognition that settings with more specialized assistance may be required by some students.

The degree of support required for the special needs student is indicated at each level of the Cascade Model. The support necessary for special needs students mainstreamed in the regular classroom varies according to needs and may include special teaching techniques (oral descriptions or chalkboard diagrams for the blind, listing key words and concepts for the deaf), special materials (sound recording for the paralyzed, braille textbooks for the blind), and additional personnel (consultant for the behaviorally disordered, teacher aide, interpreter for the deaf), or a lower student-teacher ratio. The mainstreamed student is placed in jeopardy when requirements for extra support are not met.

In order for the special needs student to be integrated appropriately into the regular classroom, the student must be able to cope intellectually, socially, and emotionally, with a fair degree of success, with the learning and other activities being carried out by the other students in the classroom.

Cascade Service Delivery Model



Regular classrooms with special education instructional materials and/or aide. (Regular teacher retains full responsibility for each student's individual program and progress.)	
Regular classrooms with special education instructional materials, plus special education consultative services to regular teacher.	
Regular classroom with itinerant or school-based special education tutors. (Regular teacher retains full responsibility for each student's program and progress. Can obtain advice, etc. from itinerant teacher.)	
Regular classroom, plus special education resource room and teacher.	Regular teacher retains full responsibility. Child obtains intensive short-term remediation in resource room.
Regular classroom, plus part-time special class.	Regular teacher retains responsibility. Child may obtain long-term support in the special class.
Full-time special class.	Special Ed. teacher — full responsibility. Integration wherever appropriate.
Combination regular and special day school; no academic instruction in regular class.	Same as above.
Special day school.	Same as above.
Special boarding school or residential facility.	Same as above.
Hospital School.	Same as above.
Home-based instruction.	Same as above.

Chapter I

Introduction

Chapter One:
Introduction

"And still I am learning."

Michelangelo

Overview

This chapter deals with the goals, definitions, characteristics, needs, and myths of gifted and talented students, and cites recent attempts to meet the needs of gifted students in Alberta. Descriptions and characteristics of giftedness are discussed. Individual student needs and requirements are delineated. An important distinction between enrichment and gifted education is made. Finally, some myths that impede the development of programs/ services for the gifted and talented are presented. The chapter ends with the Manifesto for Children written by Dr. E. Paul Torrance.

The Relationship Between Goals of Basic Education and Goals for Gifted and Talented Students

The general goals of programs/services for the gifted and talented relate directly to the "Goals of Basic Education for Alberta", as stated by Alberta Education in 1978. "The ultimate aim of education is to develop the abilities of the individual in order that he might fulfill his personal aspirations while making a positive contribution to society." The Goals of Education and the Goals of Schooling (1978) provide the broad-based objectives for all Alberta students regardless of potential or demonstrated ability. The Goals of Education reflect the significance of a partnership between schools and parents to provide the best education for each child.

The following Goals of Schooling (1978) can be fostered and developed in programs/ services for the gifted and talented.

- Develop competencies in reading, writing, speaking, listening, and viewing.
- Acquire basic knowledge and develop skills in mathematics, the practical and fine arts, the sciences, and the social studies (including history and geography), with appropriate local, national, and international emphasis in each.
- Develop the learning skills of finding, organizing, analyzing, and applying information in a constructive and objective manner.
- Acquire knowledge and develop skills, attitudes, and habits which contribute to physical, mental, and social well-being.
- Develop an understanding of the meaning, responsibilities, and benefits of active citizenship at the local, national, and international levels.
- Acquire knowledge and develop skills, attitudes, and habits required to respond to the opportunities and expectations of the world of work.

In the Review of Secondary Programs entitled "Foundations for the Future" (1985), it is recommended that the Goals of Schooling be amended to include the acquisition of critical thinking skills and decision-making abilities, accompanied by a recognition of responsibility for results of decision-making.

In addition, the following statement relates to the broad goals of providing relevant enrichment and special education opportunities to gifted and talented students:

The general goal of enrichment and gifted education is the development of individuals who can

1. learn and apply high order thinking skills to curricular and non-curricular areas and to the resolution of individual and social problems;
2. learn and reason independently;
3. adapt to and prepare for rapidly changing circumstances;
4. think critically, creatively, and constructively;
5. work harmoniously with others;
6. make more accurate their visions of the future.

Educating our gifted and talented students ideally will help them to develop significant skills, and wholesome attitudes and relationships within an environment responsive to their needs.

Meeting the Needs of the Gifted and Talented: The Alberta Response

In the spring of 1984, an Alberta teacher made the following remarks, which serve well to introduce an overview of the needs of the gifted.

> *For years the curriculum had been geared to the interests, needs, and abilities of most students. Then, about twenty-five years ago, we began to pay attention to special education for the handicapped, and gradually that has become widespread and effective. Now we are turning to the other end, and are proposing to do something about the special needs of the gifted. This is timely.*

This quotation provides an overview of the situation. However, it should not be interpreted as meaning that up until now nothing has been done for the gifted. For example, Millar (1979) reports the results of an enrichment program in a rural Alberta school jurisdiction. A survey made by Weber (1981) produced conclusions that relate to the situation in Alberta:

- Thirty percent of school boards made provision for educational programs for gifted and talented students: three-quarters of large urban boards, half of small city boards, and one-quarter of division and county boards.
- The most popular type of program was special part-time classes.
- Thirty-six percent of Alberta's programs then in existence commenced in Grade 1.
- It was estimated that 3,604 or less than one percent of Grade 1-12 students were provided with a special program of some sort in the 1981-82 school year.

At that time one of the needs at the provincial level was for an extension of these provisions. Somewhat earlier the Canadian Education Association (CEA) sponsored a survey of gifted and talented students in Canada (1978). The report indicates general support for the development of giftedness:

> *Most educational systems in Canada support the concept that every child has a right to the opportunity to become educated to his or her level of ability (p. 25).*

However, in 1978, programs for the gifted fell short of this statement of principle. Of the school boards which responded to the questionnaire, 37 percent claimed to make provision for the gifted and talented. The most popular type of program was independent study, followed by part-time classes. In addition, 55 percent of boards used acceleration, and 69 percent had special curriculum materials. A total of 12,717 students were in programs for the gifted and talented. It should be pointed out that of the 586 questionnaires mailed for the CEA survey, 54 percent were returned.

One of the needs identified in the CEA Report is "*There is a need to extend provisions for educational programs for the gifted.*"

Recognizing this need, the Minister of Education appointed a task force to prepare a report on educating the gifted (Alberta Education, 1983). This report proposed a definition, and made a number of recommendations. Alberta Education has addressed some of the issues identified in the following ways.

- Establishing policy. The following policy statement has been adopted.

  Alberta Education supports the provision of educational programs for exceptional students who have special needs, whether the students are gifted, talented, or educationally disabled. (Program Policy Manual, Alberta Education, 1984.)

- Allocating responsibility. The following guideline has been adopted.

  School jurisdictions are responsible for the identification, assessment, placement, and programming for exceptional students. School jurisdictions are also responsible for evaluating the individual progress of exceptional students. (Program Policy Manual, Alberta Education, 1985.)

- Providing funds. Because the formula may change from year to year, the 1984-85 formula is not included here. However, special grants are available to school jurisdictions to provide programs and/or services for gifted and talented students. (Program Policy Manual, Alberta Education, 1985.)

- Providing assistance. One example is given.

  Alberta Education will provide information and program advice related to the development and implementation of special education programs. (Program Policy Manual, Alberta Education, 1985.)

- New and revised curricula.

  Alberta Education will consider the needs of gifted and talented pupils in the development and revision of all curricula.

Descriptions of Giftedness

In 1972, the U.S. Commissioner of Education Sidney Marland presented a report to the Congress of the United States about the education of that nation's gifted and talented students. The report condemned the system's waste of human resources and provided definitive information to prove that only a very small percentage of gifted students were being provided with educational programs appropriate to their special needs. Marland noted that the most neglected minority in education were youngsters identified as gifted.

The Marland Report, as it came to be known, had two immediate and long lasting effects upon the education of gifted students in the United States. First, it contained an official definition of giftedness which forced educators to re-examine their notions about selecting students for inclusion in gifted programs. Secondly, it resulted in the establishment of a federal grant for gifted programs. Educators wishing to qualify for program funding were not only forced to redefine their client selection strategies but also to include new components in their program plans based on a multi-faceted definition of giftedness.

In 1983, the Report of the Minister's Task Force on Gifted and Talented Pupils commissioned by Alberta Education adopted a two-part definition. It is stated as follows.

> *Gifted and talented pupils are those who by virtue of outstanding abilities are capable of exceptional performance. These are children who require differentiated provisions and/or programs beyond the regular school program to realize their contribution to self and society.*
>
> *Children capable of exceptional performance include those with demonstrated achievement and/or potential ability in one or several areas:*
>
> *a. general intellectual ability,*
> *b. specific academic aptitude,*
> *c. creative or product thinking,*
> *d. visual and performing arts.*

However, since 1983 Alberta Education has added the other two talent areas to the definition, namely, leadership ability and psychomotor ability.

Categories of Giftedness: A Description

1. General Intellectual Ability.

The student possessing general intellectual ability is consistently superior to other children in the school, to the extent that the student needs and can profit from specially planned educational services beyond those normally provided by the regular school program. Usually, this is the student who has a large storehouse of information about a wide variety of topics. The ability to abstract, generalize, and utilize higher level thinking skills is common in this type of student.

2. Specific Academic Aptitude.

The student possessing a specific academic aptitude is that child who in a specific subject area, is consistently superior to the aptitudes of other children in the school to the extent that the student needs and can profit from specially planned educational services beyond those normally provided by the regular school program. Generally, this is the student who has an inordinate stength in a specific area, such as mathematical reasoning.

3. Creative or Productive Thinking.

The student who thinks creatively or productively is one who consistently engages in divergent thinking that results in unconventional responses to conventional tasks, to the extent that the student needs and can profit from specially planned educational services beyond those normally provided by the regular school program. Generally, this is the student who is unwilling to accept authoritarian pronouncements without critical examination. A fuller discussion of creativity is found in Chapter 4.

4. Leadership Ability.

The student possessing leadership ability is one who not only assumes leadership roles, but also is accepted by others as a leader, to the extent that the student needs and can profit from specially planned educational services beyond those normally provided by the regular school program. Generally, this is the student who can be counted upon to carry out responsibility and adapts readily to new situations. A fuller discussion of leadership ability is found in Chapter 4.

5. Visual and Performing Arts Ability.

The student possessing visual and performing arts ability is that student who consistently creates outstanding aesthetic productions in graphic arts, sculpture, music, drama, or dance, and can profit from specially planned educational services beyond those normally provided by the regular school program.

6. Psychomotor Ability.

The student possessing psychomotor ability is one who consistently displays mechanical skills or athletic ability so superior to that of other children in the school that the student can profit from specially planned educational services beyond those normally provided by the regular school program. Generally, this is the student who has good control of body movement and excellent eye-hand coordination.

Although this is the accepted description of the gifted and talented, it is expected that school jurisdictions will develop programs in accordance with their capabilities in dealing with all or a portion of talent areas. For example, some school jurisdictions may decide to develop a program that emphasizes the creative rather than other talent areas.

Table 1
Summary of Categories of Giftedness and Corresponding Observable Student Characteristics

Categories of Giftedness	Observable Student Characteristics
1. General Intellectual Ability	• Unusually advanced vocabulary for age and grade. • Large storehouse of information about a variety of topics. • Quick mastery and recall of factual information. • Rapid insight into cause-effect relationships. • Makes valid generalizations about events, people, and things. • Keen and alert observer. • Great deal of independent reading. • Readily sees logical and common sense answers.

continued

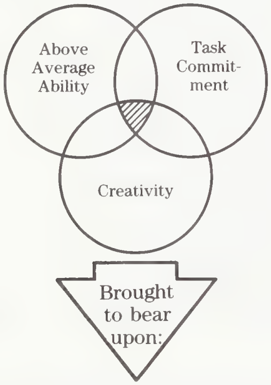
Table 1 *(continued)*

2. Specific Academic Aptitude	• Demonstrates inordinate strengths in a given area. • Ability to grasp underlying principles in the talent area. • Persistent in talent area and is motivated internally. • Prefers to work independently. • Can relate to older students in the talent area.
3. Creative or Productive Thinking	• Displays unusual curiosity about many things. • Generates a large number of ideas and/or solutions to problems. • Uninhibited in expressions of opinion. • High risk taker. • Demonstrates intellectual playfulness. • Displays a keen sense of humor and perceives humor in unlikely situations. • Sensitive to beauty. • Nonconforming. • Criticizes constructively.
4. Leadership Ability	• Carries out responsibility well. • Self-confident. • Is well liked by classmates. • Expresses ideas well. • Adapts readily to new situations. • Enjoys being around other people. • Tends to dominate others. • Participates in most social activities at school. • May excell in athletic activities.
5. Visual and Performing Arts Ability	Visual • Enjoys art activities. • Displays interest in other students' art work. • Elaborates on ideas from other people. • Tries a variety of media. • Is critical of own work. Performing Arts Music • Sustains interest in music. • Readily remembers melodies. • Displays keen awareness and identification of a variety of sounds heard at a given moment. • Perceives fine discriminations in musical tone. • Plays a musical instrument. Drama • Volunteers to participate in classroom skits and plays. • Tells stories or renders accounts of experiences. • Uses appropriate gestures and formal expressions to communicate feelings and thoughts. • Handles body with ease and poise. • Holds the attention of a group when speaking. • Creates original plays or plays from stories.
6. Psychomotor Ability	• Demonstrates good control of body movements. • Has excellent eye-hand coordination (often good at computer and typing skills). • Manipulates objects and puzzles with ease. • Able, with ease, to complete complex mazes and word searches. • Learns new gross motor activities readily. • Has good sense of rhythm.

Renzulli's Concept of Giftedness

Renzulli (1978) states that giftedness is "the interaction among three human clusters: above average ability, task commitment, and creativity." He also emphasizes the "equal partner" contribution of each of the three parts.

Students who are capable of developing an interaction among the three clusters require a wide variety of educational opportunities and services that are not ordinarily provided through regular instructional programs.



General Performance Areas: mathematics, visual arts, physical sciences, philosophy, social studies, law, religion, language arts, music, life sciences, movement arts.

Specific Performance Areas: cartooning, astronomy, public opinion polling, jewelry design, map making, choreography, film making, biography, statistics, local history, electronics, composing music, landscape architecture, chemistry, demography, microphotography, city planning, pollution control, poetry, fashion design, weaving, play writing, advertising, costume design, meteorology, puppetry, marketing, game design, journalism, electronic music, child care, consumer protection, cooking, ornithology, furniture design, navigation, geneology, sculpture, managing wildlife, set design, animal learning, agricultural studies, film criticism.

Taylor - Multiple Talent Teaching Approach

Calvin Taylor (1978) states that all children are potentially gifted. Taylor indicates that present IQ tests measure only one-tenth of an individual's mind power. In other words, 90 percent of potential mind power is kept largely dormant. He believes that, in schools, educators should be teaching for multiple talents and it is the teacher's job to discover, "unearth", and cultivate those talents. The teacher's challenge is to actualize student potential and be a talent developer, not simply a knowledge dispenser. A fuller explanation of Taylor's multiple talent teaching approach is found in Chapter 4.

Characteristics of Gifted and Talented Students

It is extremely important for educators to be aware of manifestations of giftedness in and out of the classroom. Teachers, parents, and significant others will note many of these characteristics in their daily interaction with students. Numerous lists of the characteristics of gifted and talented students have been generated. While an individual student may not exhibit all of these characteristics, knowledge of all the characteristics may be of use in our attempts to maximize learning environments. Following are two lists of characteristics, general learning and creative, that will assist educators and others in the initial identification of gifted and talented students.

General learning characteristics of gifted and talented children. These children

- learn to read earlier and with better comprehension than age mates
- learn the basic skills better, more quickly and with less practice
- are able to construct and handle abstractions quicker than age mates
- are perceptive of nonverbal cues and draw inferences earlier
- take less for granted; seek "hows" and "whys"
- display a better ability to work independently at an earlier age
- can sustain longer periods of concentration and attention
- have interests that are often wildly eclectic and intensely focused
- have seemingly boundless energy
- have unusual ability to relate well to parents, teachers, and other adults
- demonstrate a keen sense of humor and enjoy play on words
- are appreciative of the aesthetic
- are concerned over the future and their role in directing it.

Creative characteristics of gifted and talented children. These children

- are fluent thinkers, able to produce a large quantity of possibilities, consequences, or related ideas
- are original thinkers, seeking new, unusual, or unconventional associations and combinations among items of information; they also have an ability to see relationships among seemingly unrelated objects, ideas, or facts
- are flexible thinkers, and are able to use many alternatives and approaches to problem solving
- are elaborative thinkers, producing new steps, ideas, responses, or other embellishments to a basic idea, situation, or problem
- show a willingness to entertain complexity and seem to thrive in problem situations
- are good guessers and can readily construct hypotheses or "what if" questions
- are often aware of their own impulsiveness and irrationality, and demonstrate emotional sensitivity
- have a high level of curiosity about objects, ideas, situations, or events
- often display intellectual playfulness, fantasy, and imagination
- can be less intellectually inhibited than their peers in expressing opinions and ideas and often exhibit spirited disagreement
- have sensitivity to beauty and are attracted to aesthetic dimensions.

Not all gifted students will manifest all of the learning and creative characteristics. The degree or combination in which these traits are present is what sets gifted and talented students apart and determines their special educational needs.

There is a strong tendency for educators, when considering giftedness, to focus on the academically gifted. It is important to remember that giftedness manifests itself in a variety of different ways.

Outstanding achievement and performance may manifest itself in one or more areas:

- all school subjects
- either literacy or numeracy
- a single school subject
- leadership
- music (performance and/or composing)
- artistic endeavors
- drama
- psychomotor expressions.

Finally, Bloom (1985) has written a book entitled "Developing Talent in Young People" which contributes to a better understanding of the ingredients of the gifted. The results of the retrospective study indicate that talent development requires a minimum of a dozen years of commitment to learning. Central to this process is the amount and quality of support and instruction that children receive from their parents and teachers.

Personality Characteristics: A Brief Review

Extensive lists of characteristics have been proposed. Some authorities have attempted to reduce lengthy lists of personality characteristics to the most salient ones. For example, it has been suggested that sensitivity is almost synonymous with giftedness.

One study of a large number of gifted students found that the personality traits that distinguishes the successful from the unsuccessful were

1. persistence in the accomplishment of ends
2. integration toward goals, as contrasted with drifting
3. self-confidence
4. freedom from feelings of inferiority.

In an extensive review of research, it was found that common characteristics of gifted persons were high energy, high valuation of aesthetic qualities, broad interests, independence of judgement, and self-confidence.

For giftedness to manifest itself, it is probable that at least two of the personality characteristics mentioned above must be present. One of these is variously called persistence, hard work, or task commitment. This should not be confused with mere hard work. One researcher captured the idea in the expressions, "persistence in the accomplishment of ends," and "integration toward goals."

The second characteristic that must be present is self-confidence: willingness to take risks, faith in one's own judgement, or mental courage. As one presenter, who made an exhaustive study of creativity among architects, put it in a discussion at a Nobel conference:

> *The most salient mark of a creative person, the central trait at the core of his being, as I see it (is)...personal courage, courage of the mind and spirit, psychological or spiritual courage to question what is generally accepted; the courage to be destructive in order that something better can be constructed; the courage to think thoughts unlike any one else's; the courage to be open to experience both from within and from without; the courage to stand aside from the collectivity and in conflict with it if necessary, the courage to become and to be oneself.*

The courage described above may be acceptable in adults, but could be perceived by teachers as defiance of authority, rudeness, or the like, when exhibited by gifted students.

Development of Personality

An important question is whether the school can influence or develop personality and, specifically, if task commitment and self-confidence can be developed. The answer is that they can, but not easily. One researcher holds that creativity is a process with three stages: hypothesis formation, hypothesis testing, and communication of results (all of which follow a preparation or educational stage which Stein (1974) says is not really part of creativity). Communication of results means providing ways in which the achievement or product can be brought to the attention of others. If others approve, the first and most effective way of increasing both task commitment and self-confidence is present.

A closely allied procedure, which is also essential in developing creativity, is the suspension of the critical faculty at times, and at all times the avoidance of destructive "personal" types of criticism. In schools, such a class atmosphere, if present, will promote both task commitment and self-confidence.

Task commitment and self-confidence can be developed. A teacher can promote the development through two procedures.

1. Recognize achievement and product. If it is likely to be acclaimed, recognize it publicly. If this is in doubt, teacher and parent acclaim will help.
2. Initially, develop an atmosphere of encouragement rather than criticizing novel achievements or products. Better that the first reaction be "how interesting," "that's a new idea," or the like, than remarks such as "silly," or "impossible." This does not mean that evaluation must not in the end be applied objectively. The spirit should be "This achievement or product is inadequate, but one never gets adequate achievements or products without trial, and sometimes failure." Mistakes are viewed not as flaws, but rather, necessary ingredients to success.

Torrance and Meyers (1970) indicate six essential components necessary in the classroom to promote and encourage optional learning and creativity.

1. Teachers must develop a high degree of psychological safety so that children are not fearful of making mistakes.
2. Teachers must provide an array of options open to all students.
3. Teachers must value genuine effort by students.
4. Teachers must be sensitive and flexible to the unique needs of each student.
5. Teachers must enjoy the experience of interacting with students.
6. Students require quiet time and a quiet place in which to think.

Individual Student Needs and Requirements

"Potentialities that are not identified, respected, and nurtured will atrophy. Parents who ask where the wonder went in their gifted children will find a partial answer in society's failure to inspire and encourage thinking. As a result many young people with talent are destined to settle for a life of mediocrity. Those few who survive the fear, indifference, hostility, envy, and sarcasm of society toward their giftedness are sometimes able to triumph as adult leaders in their fields. But to do so involves a constant struggle against the status quo, a struggle the majority of gifted youngsters generally find not worth the battle."

Miller and Price (1981)

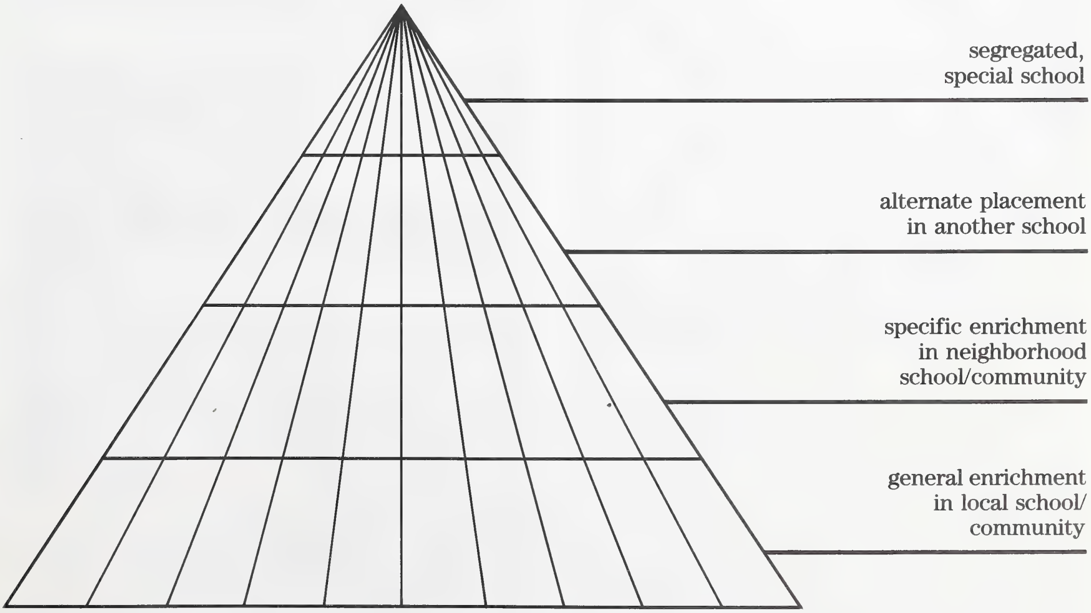
Individual Needs of Gifted and Talented Students

A list of personal needs of gifted and talented students would include the following.

- The need for opportunities to use, understand, and develop higher mental processes associated with academic achievement and artistic talent, the different mental processes associated with creativity, the different psychosocial factors associated with leadership and entrepreneurship.
- The need for opportunities to meet and work with other gifted children or youth who may be gifted in widely different areas such as ballet, mathematics, electronics, art, music, or leadership. The gifted soon learn that they are different. It is reassuring to find out that they are not alone.
- The need for opportunities to meet and work with other gifted children or youth in their own area of giftedness. This may not be feasible in smaller school systems.
- The need for opportunities to meet and work with other children of varying abilities.
- The need to understand and accept human value systems, and to incorporate values into their own lives.
- The need for opportunities to learn key skills necessary for effective functioning in society and for shaping the world.
- The need for opportunities to make their visions of the future more accurate. There is a strong need to understand the characteristics of a desirable and reasonable future and the necessary components of learning in the future. These learning components are elaborated upon in Appendix A.
- The need for opportunities to integrate education with the rest of society.

Figure 1 below indicates the various organizational approaches that can be taken to meet the changing needs of gifted and talented individuals as they proceed through the school system.

Figure 1
Organizational Approaches


segregated, special school
alternate placement in another school
specific enrichment in neighborhood school/community
general enrichment in local school/ community

A child may move from one stratus to another as needs change in the course of an entire school year.

Requirements of Gifted and Talented Students

Gifted and talented students require time to work (a) with age peers, (b) with intellectual peers, and (c) alone, in an appropriate affective learning environment.

Time to work with age peers fosters healthy social and emotional development. Time to work with intellectual peers can be accomplished in a number of ways, such as, cluster groupings, cross-grade groupings, and part-time pull-out arrangements. Time to work alone will enable the gifted and talented student to compact the regular curriculum and provide alternative and individualized learning experiences.

Finally, gifted and talented learners require a supportive environment which respects opinions and divergent responses; stresses humaneness along with knowledge; provides an atmosphere wherein it is safe to make mistakes and fail; appreciates honest feedback; and tolerates ambiguity.

Enrichment and Gifted Education

Background

Enrichment and gifted education will provide students with the skills and opportunities they need to realize their maximum potential. The enrichment component will facilitate the learning experience of all students. The needs of students who require more intense, ongoing, and different learning experiences will be addressed by the gifted component.

The Distinction Between Enrichment and Gifted Education

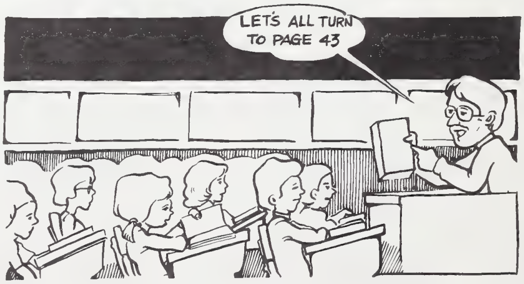
Enrichment is provided to all students who demonstrate a need for broader and deeper educational experiences on an occasional basis. This is normally carried out in the classroom by the teacher, who replaces, supplements or extends the prescribed provincial curriculum. Enrichment is a response to meet the needs of all students to learn higher level thinking skills. This response involves teaching important thinking processes and providing opportunities to practise those processes.

Gifted education is provided to some students who demonstrate extraordinary abilities that necessitate a more intense educational program over an extended period of time. Long-range planning is required over the student's entire school career. These intense learning experiences are developed and coordinated on an individual basis. This is normally carried out by a specialized teacher who uses learning materials appropriate to the student's interest and provides ample opportunities for the application of thinking processes to independent study.

Myths That Impede the Development and Implementation of Programs/Services for the Gifted and Talented: A Visual Study

Large numbers of myths exist among educators, parents, and the public in general. A myth is an imaginary story or half-truth held by many people. Myths have no basis in reality. Some of the following myths are taken from an article by Millar (1981).

Myth No. 1: Special programs for the gifted are undemocratic — all men are created equal. Therefore, all students should get the same form of education.


LET'S ALL TURN TO PAGE 43

Reality: It is a **fact** that all individuals are not equal in ability or potential. It is only true that each child has equal opportunity to education. Equal education cannot be justified in light of the evidence. Bright children learn at a faster rate and in greater depth than non-gifted children.

Myth No. 2: Gifted children will make it on their own despite any special programming.

THAT'S TOO EASY FOR ME
ROOM #10

Reality: It is a **fact** that many dropouts in high school are bright children who have found little meaning in the school experience. Some studies have shown that more than half of the gifted and talented are working below the level of which they are capable.

Myth No. 3: If the gifted are so smart, they should all be getting good grades.

Reality: It is a **fact** that some gifted students are poor readers. Research indicates that some gifted children have reading problems. Underachievement in the gifted begins as early as the third grade.

Myth No. 4: Special programs for the gifted will form an "elite" group.

Reality: It is a **fact** that when a gifted program is provided, the gifted and talented actually improve in their ability to interact socially and empathize with their non-gifted peers.

Myth No. 5: Gifted and talented students come from or represent an upper-middle-class elite.

MY DAD HAS ONLY GRADE 8 EDUCATION

Reality: It is a **fact** that the gifted and talented come from every racial, cultural, educational, and socio-economic background.

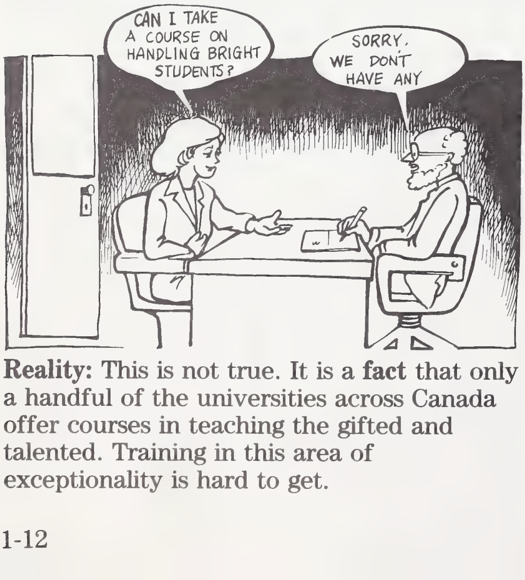
Myth No. 6: Educators are aware of the needs of the gifted.

WE HAVE NO GIFTED OR TALENTED STUDENTS IN OUR SYSTEM
ADMINISTRATION

I LIKE CHILDREN WHO SIT QUIET, DO THEIR WORK AND GIVE CORRECT ANSWERS.

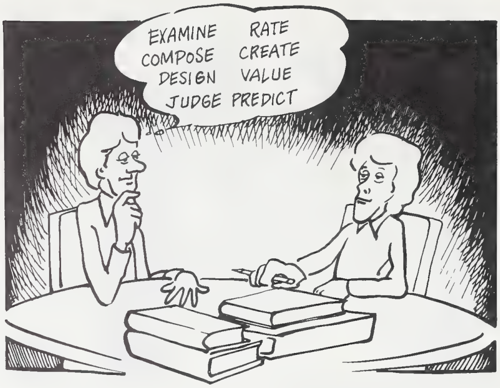
Reality: It is a **fact** that more than half of all school administrators in one survey stated that they had no gifted or talented students in their school system. Some classroom teachers, when describing the ideal pupil, list as least desirable those characteristics which would describe a creative child.

Myth No. 7: Teachers are being adequately trained to teach the gifted.


CAN I TAKE A COURSE ON HANDLING BRIGHT STUDENTS?
SORRY, WE DON'T HAVE ANY

Reality: This is not true. It is a **fact** that only a handful of the universities across Canada offer courses in teaching the gifted and talented. Training in this area of exceptionality is hard to get.

Myth No. 8: Programs for the gifted are good for all children.



Reality: It is a **fact** that training in divergent thinking skills is recognized as good for all children; however, the rate and depth of exploration is different for the gifted because of the emphasis on high level thinking skills (analysis, synthesis, and evaluation).

Myth No. 9: Creativity cannot be taught.

Reality: Torrance (1979) has isolated the factors that contribute to creative behavior. It is a **fact** that creativity can be cultivated in all students and can be deliberately taught.

Myth No. 10: Talent automatically rises to the top like cream on milk.

Reality: Thomas Edison stated that "genius is 10 percent inspiration and 90 percent perspiration." It is a **fact** that neglect can turn gifts and talents into mediocrity. Bloom (1985) studied successful people to see what made them tick. The study has provided strong evidence that no matter what the initial characteristics (or gifts) of the individual, unless there is a long and intensive process of encouragement, nurturance, education, and training, the individual will not attain extreme levels of capability in particular fields.

To be translated into outstanding achievement, talent must be

1. nurtured in the home,
2. developed by the right kind of teachers (engender the "romance of learning"),
3. honed by years of continuous training and practice.

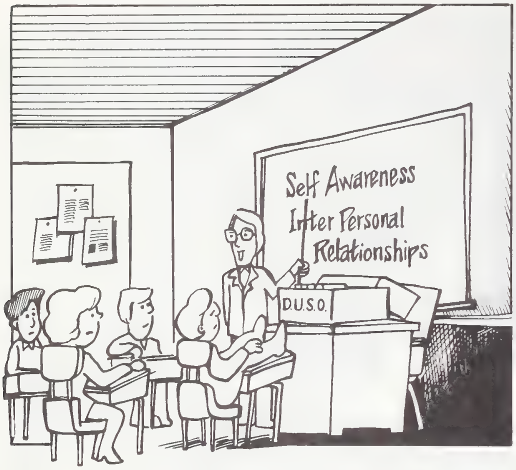
Myth No. 11: Gifted children can be identified by IQ.

Reality: It is a **fact** that most IQ tests are culturally biased. It is important to use multiple criteria in the selection and identification of gifted and talented students.

Myth No. 12: Gifted children who are accelerated in school do not adjust socially.

Reality: It is a **fact** that gifted children generally adjust socially very well with peers and older people.

Myth No. 13: Gifted children have no emotional difficulties.



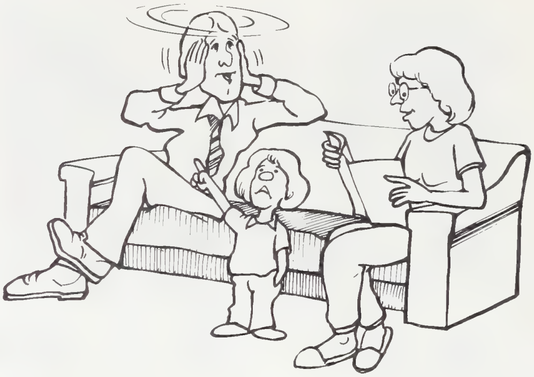
Reality: It is a **fact** that gifted and talented students do have guidance and counselling needs. They need assistance in dealing with their uniqueness and self-esteem. In addition, they need help in the areas of career awareness and exploration.

Myth No. 14: Gifted children are generally physically weak and sickly.

Reality: It is a **fact** that gifted and talented students actually tend

1. to be physically stronger;
2. to have fewer illnesses;
3. to exceed age mates in height and weight.

Myth No. 15: Parents of gifted understand their children.



Reality: It is a **fact** that parents of gifted and talented students like parents of other exceptional children are often confused because they think their child is not normal. Professional advice and counsel is required.

MANIFESTO FOR CHILDREN

① DON'T BE AFRAID TO FALL IN *LOVE*
WITH SOMETHING &
PURSUE IT WITH *INTENSITY.*

② KNOW, UNDERSTAND, TAKE PRIDE IN,
PRACTICE, DEVELOP, EXPLOIT, &
ENJOY YOUR GREATEST STRENGTHS.

③ LEARN TO FREE YOURSELF
FROM THE EXPECTATIONS OF OTHERS
& TO WALK AWAY FROM THE GAMES
THEY IMPOSE
ON YOU.

☆ FREE YOURSELF TO PLAY
YOUR OWN GAME.

④ FIND A GREAT TEACHER OR MENTOR
WHO WILL HELP YOU.

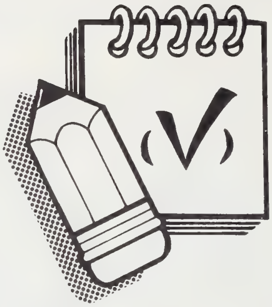
⑤ DON'T WASTE ENERGY TRYING TO BE
WELL ROUNDED.

⑥ DO WHAT YOU LOVE
AND CAN DO WELL.

⑦ LEARN THE SKILLS OF
INTERDEPENDENCE.

By
E. Paul
Torrance

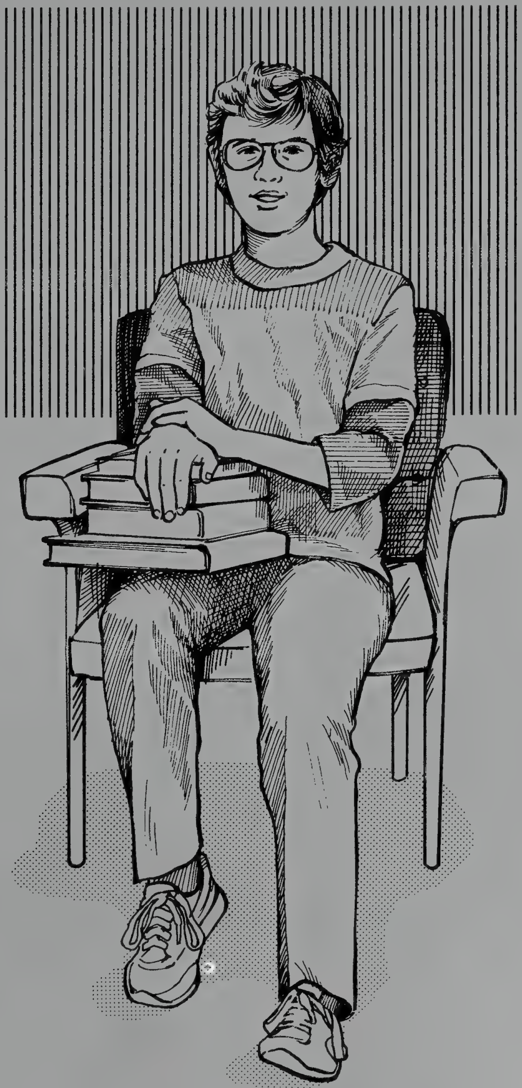
Key Elements - Chapter One



1. Provincial ‘‘Goals of Basic Education for Alberta’’.
2. Local program/service goals.
3. Descriptions of giftedness.
4. Observable characteristics of gifted and talented students.
5. Needs and requirements of gifted and talented students.
6. Differences between enrichment and gifted education.
7. Myths regarding giftedness and their applicability.
8. The ‘‘Manifesto for Children’’.

Chapter II

Planning and Implementing a Program/Service: Basic Considerations



Chapter Two:
Planning and Implementing a Program/Service: Basic Considerations

"Chance favors only the prepared mind."

Louis Pasteur

Overview

This chapter deals with important considerations in the planning and implementation of programs/services for the gifted and talented. Specifically, the following factors are elaborated upon: adoption of a philosophy and description; establishment of a steering committee; development of a needs and resources inventory; description of program delivery systems; choice of a program/service designed to meet the needs of gifted and talented students at the local level; staffing and in-service requirements; school and community awareness; and keys to program success.

Developing a Philosophy and Description

A philosophy of education for the gifted is considered to be a necessity because

1. it provides a broad and basic statement of the reasons for the program, who is affected, and the general nature of what is intended;
2. students, teachers, parents, and others need a statement of principles so that they know what to expect;
3. without a clear statement of philosophy, programs may wander, do little more than occupy the time of the students and the teacher, and produce dissatisfaction and apathy;
4. specifically, a philosophy, addresses the why question — "Why special programs for the gifted?", the who question — "Who are to be included?", and the how question — "How are they to be treated?".

The stated principles used to guide program development, participation, and evaluation should foster a common understanding of the service to be provided. There must be an understanding of who will be accommodated within the program and under what conditions, including the type of administrative arrangement and student groupings. There should be a statement about the expectations for parent and community involvement and how program modification will proceed. This statement should form the blueprint for the total development scheme for the gifted program and lead to a unified or consistent approach within a jurisdiction and within a school and ensure utilization of community resources.

The statement of philosophy of education for the gifted should be consistent with the general or overall philosophy of the school jurisdiction. The Goals of Basic Education for Alberta adopted by the legislature in 1978 contains such a statement:

> *The ultimate aim of education is to develop the abilities of the individual in order to fulfill personal aspirations while making a positive contribution to society.*

This statement does not purport to be a complete philosophy of education, but it is indeed a statement of philosophy. It answers the why, who, and how questions.

Why: *"in order to fulfill personal aspirations while making a positive contribution to society"*
Who: *"the individual"*
How: *"by developing the abilities"*

A statement of rationale (philosophy) which touches giftedness has been previously quoted and is repeated here.

> *Alberta Education supports the provision of educational programs for exceptional students who have special needs, whether the students are gifted, talented, or educationally disabled.*

These statements have been developed by Alberta Education for the province generally; each school system will develop locally tailored statements.

Justification of Programs for the Gifted and Talented

The attitudes people hold are subject to gradual change. While rational argument is very slow in affecting attitudes, it is the foundation for change. This section is designed to provide justification for special provisions for educating the gifted.

There are several reasons for the provision of special programs or services for gifted and talented pupils:

Equality of opportunity.

This does not mean the same provisions for all. It is recognized that children with incapacities have special educational needs. At the other end of the spectrum, children with exceptional abilities and talents also have special educational needs. It is a basic responsibility of education to provide for these needs.

Legal considerations.

Superintendents and many school board members are familiar with the Carriere case. The County of Lamont #30 was found liable to provide an education for a disabled student. This case has been interpreted to mean that every child, regardless of qualities or attributes, is entitled to have some program of education, although not necessarily in the local school. However, the school jurisdiction is responsible for either providing education for exceptional children, or directing them to another school jurisdiction.

Alberta Education has the legislated mandate to administer the provision of education in the province. Various branches have been established within the department to advise, guide, and monitor the implementation and delivery of educational services by school jurisdictions. One of these branches is the Special Educational Services Branch, which was established to provide leadership for children with exceptional educational needs.

The purpose of the Special Educational Services Branch is stated as follows: "Children with exceptional educational needs must have those needs addressed through school programs." (Special Education Manual, 1985.) Alberta Education supports the provision of educational programs for exceptional students who have special needs, whether the students are gifted, talented, or educationally disabled.

Financial Support.

Provincial special education block grants are paid annually to school jurisdictions on a per resident pupil basis. This block grant is intended to be used to provide programs and services for all children with special needs including the gifted.

Benefit to Society.

The gifted have the potential to make great contributions to society in many diverse areas: inventions, leadership, scientific developments, artistic creations, literary productions, business enterprises, and scholarship in any one of a number of subjects. If this potential can be developed, society will be the richer. If it is allowed to lie fallow, society will be the poorer. Programs for the gifted are designed to actualize this potential. For example, society may benefit by the discovery of a new cure for a disease, by an invention which makes life more pleasant, by a statesman who works toward world peace, or by an artist who paints a soul-stirring picture. The gifted are capable of such contributions. The schools should do everything possible to enhance this likelihood. Salk, who developed the vaccine for polio, was in a program for gifted children.

Enrichment for all students.

To the extent that a program for the gifted touches all teachers, it can generate excitement in a school in such a way that it improves all teaching and benefits all students. Enthusiasm is infectious: the emphasis on thinking processes, on creative processes, and on task commitment or perseverance can affect all the classrooms in a school.

Problem prevention.

Programs for the gifted help prevent underachievement, delinquency, and dropping out. In the early 1970's, in one state of the United States, fourteen percent of dropouts had IQ's of 130 or over. The gifted can easily become disenchanted with school and "turn it off," become very careless or lazy, or physically drop out. Programs for the gifted can help challenge the superior abilities and talents of these students.

Relative cost.

Of all programs in special education, those for the gifted cost least. For those who think in terms of cost benefit, there is a likelihood of maximum dollar return.

Description

After the philosophy of education for the gifted and the justification for programs are understood, a definition of giftedness can be formulated. A description developed by Alberta Education is presented in Chapter 1.

The reader may recall the general philosophical statement first quoted, *"...fulfill personal aspirations while making a positive contribution to society,"* and notice how consistent the last statement is — *"realize his contribution to self and society."* The definition and broad goal stated for the education of the gifted are in harmony with the philosophy of education applicable to all students.

After stating the jurisdiction's definition of giftedness a few general program goals should be formulated.

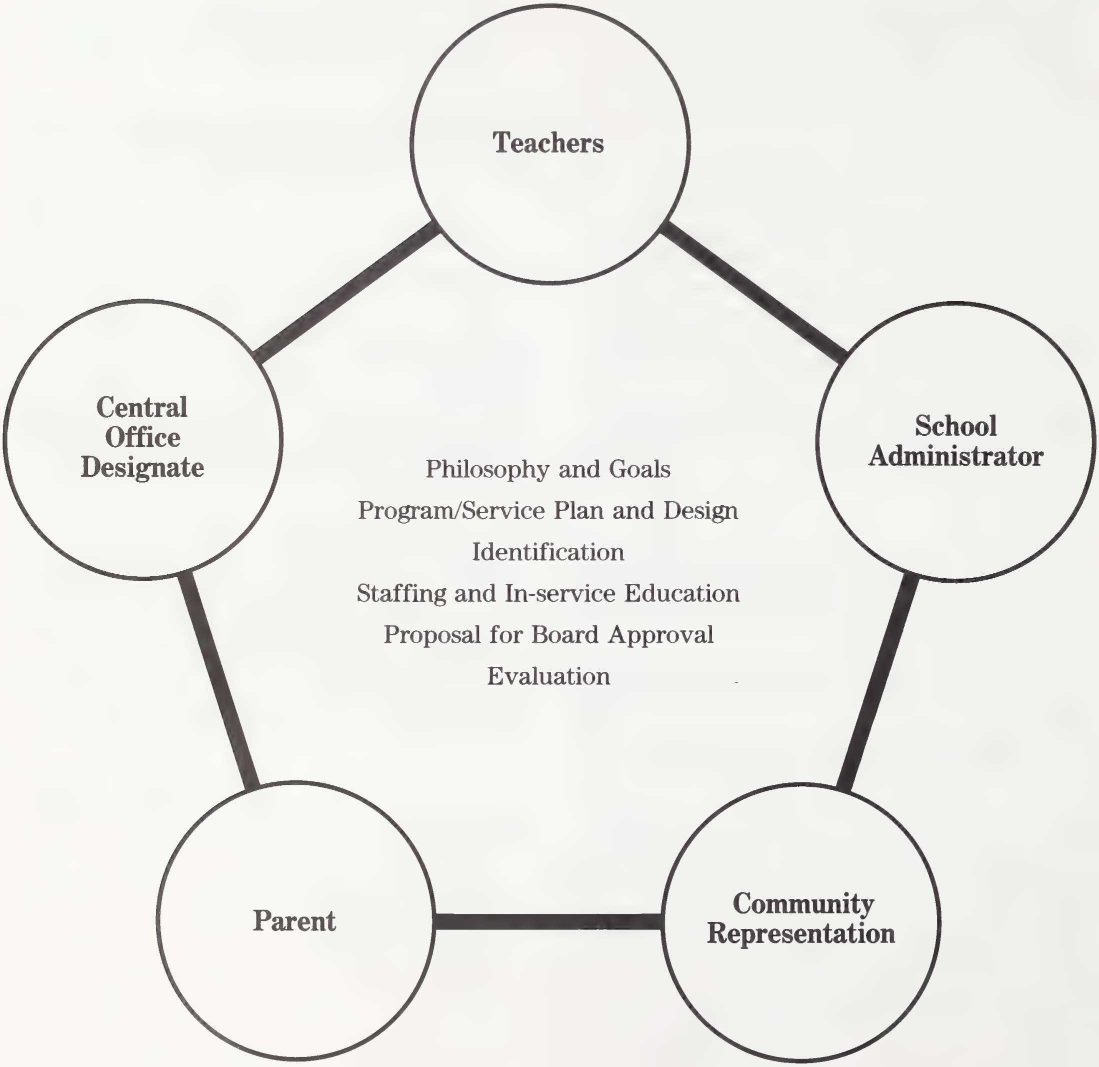
1. To identify in every school those children who are gifted.
2. To understand the abilities and needs of each gifted child.
3. To provide differentiated programs which are appropriate to the interests and abilities of the students.
4. To provide the tool skills necessary for adaptation to and preparation for rapidly changing circumstances.

Steering Committee

In a school system, specific personnel will be assigned the responsibility of planning a program for gifted and talented students. A steering committee drawn up to advise and assist is suggested. This committee could be composed of administrators, teachers, parents, and possibly other community members. It could be a small or large group, informally or formally appointed. It could vary over time as the planning proceeds through various stages.

There are important issues in gifted and talented education. The steering committee should be informed about them so that wise choices are made. The following chart indicates areas for consideration by a steering committee.

Local Steering Committee to Plan, Implement and Monitor Programs/Services for the Gifted and Talented



Philosophy and Goals
Program/Service Plan and Design
Identification
Staffing and In-service Education
Proposal for Board Approval
Evaluation

Needs and Resources Inventories

For the gifted and talented program to address specific student needs, a needs survey should precede program development. Gifted and talented programs should also tailor their special curricula to specific students. In turn, these individual needs constantly fluctuate. Some estimate of overall student need should be made, and the programs designed should be flexible. A large school system would have many types of gifted students — a small jurisdiction might have only a few individual students.

George (1983) notes some general needs that gifted students have:

a. early identification of giftedness
b. student motivation and involvement in decisions
c. assistance in attaining potential
d. differentiated educational programs
e. interaction with peers of similar abilities and interests
f. attention to both cognitive and affective needs
g. homogeneous grouping by specific aptitudes
h. training in good study habits
i. long-term planning
j. the elimination of stereotyping
k. guidance and counselling services
l. educational acceleration, and
m. recognition of individual needs.

Another researcher saw specific needs relating to career education plus adaptations for the culturally different, disadvantaged, learning disabled, and females.

Assessing what services for gifted students are already in the schools, what additional ones should be made available and how they should be arranged can be done by surveying school personnel. This is better done after some awareness of the characteristics, needs, and educational possibilities of gifted students has been established.

Schools offering French immersion and francophone minority programs will want to consider the needs of gifted students and various program alternatives. The demands of learning in French, as well as involvement in community-based programs, may limit the number and type of program options for these students.

Formal instruments for such a survey have been developed by Williams (1979), Performance Levels of a School Program Survey, and by Treffinger and Wittig (1980), IPPM Needs Assessment Inventory.

More specific needs will be identified as student identification proceeds, but a gifted program may have to be approved before personnel can be obtained to assess the individual students.

Planning a program that will meet all individual needs should be the goal. However, in practice, programs can be implemented to the level permitted by resources allocated to the program. Inventories should be carried out to assess resources. A pragmatic approach might consider what program is feasible, which students would benefit, and which needs could be met.

In small districts, the senior administrator usually has such a resources inventory in mind. In larger districts, this will not be the case. Collecting data may be essential for program planning, but it may also serve to arouse interest in the gifted program. An inventory should include the following matters.

1. Space. If the program calls for materials, classroom space for students, special work space for projects, etc., what is available?
2. Materials. What books, manuals, or workbooks already exist? Where are they?
3. Community resources. At this stage, it is not details such as a list of potential mentors that is needed, but information about broader resources such as active ABC (Association for Bright Children) groups, community colleges, parent advocates. These resources may be utilized to augment a school program for gifted and talented students. Later, a mentorship catalogue can be compiled which would match potential areas of interest with community experts.
4. Staff resources. What training, interest, and experience in teaching the gifted exists?

Program Delivery Systems

The feasibility of any special program for gifted and talented students will depend on the delivery system chosen.

There are actually many program alternatives. Getzels and Dillon (1973) listed thirty:

> *Summer classes, non-graded primary, early school admission, college courses for high school students, college credit for high school courses, special classes in particular subjects, special classes in all subjects, Saturday classes, ability grouping, enrichment in regular classrooms, itinerant resource teachers, additional courses beyond a normal load, clubs and extracurricular activities, field trips, special televised courses, half-day regular and half-day enrichment, acceleration, special schools, counselling, individual tutoring, independent study, exchange, flexible progression — taking advanced courses, advanced placement, honors programs, non-school programs (libraries, museums, orchestras, etc.), new curricula, self-instructional systems (correspondence study), mentors, and parent programs.*

Choice of program delivery mode, especially the choice between in-classroom or pull-out, or any combination of the two, can be significant. It should reflect philosophy and the social values of the community. The question of elitism of programs sometimes arises. School and community reactions to the program may have to be considered as part of individual need fulfillment. Each student needs social acceptance. Social acceptance for the gifted child should be protected and fostered. This is sometimes done by keeping the program in low visibility. More essential is the promotion of community acceptance of individual differences, including differences in learning styles. In-classroom programs are less susceptible to charges of elitism.

The major drawback of an in-classroom program for the gifted and talented is lack of teacher time for implementation. With a pull-out system this time is given greater priority and the teacher can focus on subject matter and skills that are important to the gifted child.

Early primary education can often accommodate various delivery modes but pull-out delivery systems make children especially visible in elementary and junior high schools. They can also be disrupting for the classroom teachers who have a tight comprehensive program to deliver. At the secondary school level where diverse programs are offered and students are streamed, regularly scheduled pull-out programs might be more accepted.

Scheduling of special classes during noon hours or after school can also be implemented.

The advantages and disadvantages of various delivery systems should be considered as they relate to the individual student, and to the specific school circumstances.

Teachers are familiar with grouping students for various purposes. Two points about grouping gifted students should be made.

a. Gifted students benefit from two kinds of groups: socially from their age peers, and intellectually from peers at their level of education. From the former, they gain needed experience for the usual community and work experience they will encounter. From the latter, they will learn that they are not so unique as to be "weird."

b. Cross age/grade level groupings are not only possible but beneficial.

Local philosophy may lead to a preferred delivery choice, but it would probably be wise to leave options open, and to have any system approved as an individual case would warrant. Individual education plans would likely cite more than one delivery mode. If partial pull-out is provided, time in classroom should also be utilized to develop the student's interest.

A. Delivery Modes

Several modes of curriculum delivery have evolved for educating gifted students. Each of these has advantages and disadvantages. It should be noted that the delivery modes may be combined and that there are several supporting strategies, each of which is compatible within one or more of the modes.

In addition, a comprehensive plan to meet student needs should provide a variety of provisions.

1. Provision for the Gifted within the Regular Classroom is characterized by

- Students being formally identified;
- Extension of usual materials and equipment being made available;
- Support staff being on hand, e.g., system based experts;
- Planning involving the total school staff;
- Education of classroom teachers in diagnostic procedures, methods, materials and strategies for the gifted;
- Educating all teachers in planning and managing individualized instruction, and in teaching to different learning styles.

Advantages

- There is little change needed in the school organization.
- Exceptions to the system's transportation network are unnecessary.
- Classroom teachers take ownership of the program/service.
- Adjustment of the student to a new peer group or new teacher is avoided.
- The regular curriculum is maintained and integrated with important teaching processes for the gifted.
- Other students become aware of the special program; some may selectively or situationally participate.

Disadvantages

- Interference with other classroom "priorities."
- Extra time is required of the classroom teacher for program modification and curriculum development.
- Not all teachers desire, or are competent to be involved in educating the gifted.
- This arrangement requires extensive teacher in-service.
- Each class would need specialized materials.

2. Grouping a Few Gifted Students into a Regular Classroom (Clustering)

This mode is a modification of #1 above which results in gifted students from several classes being grouped into one regular classroom. Many of the advantages and disadvantages are retained. Clustered gifted students should receive significantly different programs than their age and class peers.

Advantages

- Not all teachers will have to work with gifted children, thus substantially reducing in-service requirements and overall teacher planning time.
- Planning time of one cluster teacher benefits many gifted students.
- There is more peer interaction among the gifted.

Disadvantages

- Class may be considered elitist.
- Teacher may expect too much of average ability classmates.
- There may be teacher reluctance to assume extra responsibility for students needing individual instruction.

3. Provision for the Gifted in the Regular Classroom with a Catalyst Teacher is characterized by

- Students being formally identified;
- Extension of usual materials and equipment being made available;
- Support staff being on hand, e.g. system based experts;
- Planning involving the total school staff;
- Education of classroom teachers in diagnostic procedures, methods, materials, and strategies for the gifted;
- Educating all teachers in planning and managing individualized instruction;
- Catalyst teacher being assisted with planning and preparing materials.

Advantages

- School staff involvement and commitment leading to program development and integration.
- Consistency of approach between elementary and junior high.
- Classroom teacher not overburdened.
- More effective use of student/teacher time.
- Material presented would be better researched and planned.

- Individualized instruction would improve.
- Child remains in a comfortable surrounding.
- Catalyst teacher can lend much needed support to regular classroom teacher.
- Overflow to general classroom.
- Many resources made available to teachers.

Disadvantages

- High level of support from other teachers is required.
- Needs extra resource person not included in teacher-student ratio.
- Students would not have collective interaction.
- Classroom teachers may feel they have lost ownership of their students' progress.

4. Pull-Out Arrangement

Students are removed from the classroom for part of each day or week to join activities with their gifted peers. This may take place in the same school or the children may be required to attend a neighboring school. This arrangement is feasible through

- Time out of the regular classroom varying with the circumstances;
- Time usually being equivalent to an option;
- Planning usually involving the total school staff;
- Time being provided for conference between the "pull-out" teacher and the regular classroom teacher;
- Continuous evaluation;
- District coordination;
- Flexibility to meet changing students' needs.

Advantages

- Students experience being part of a gifted peer group which provides mental stimulation and an extended base of information, as well as a measure of reassurance about being "different."
- Students experience an additional learning environment.
- Materials can be used from one room only.
- Teachers focus on educating the gifted.
- Extensive in-service is required by a smaller number of teachers.
- Students are not continually removed from interaction with their normal age group peers.
- Less planning and teaching time is required of the classroom teacher.

Disadvantages

- Regular classroom lessons are interrupted. Classroom teachers have to be sure the gifted students do not miss key classroom presentations. Students resent excessive make-up homework.
- Scheduling may be problematic.
- Antagonism when homeroom teachers view their activities as more important. Communication between teachers is essential but time consuming.
- Visibility of different educational treatment may antagonize peers.
- There may be a need for increased transportation.

5. Complete Pull-Out

Students spend all of their school time in special classes within a regular school or in a separate school for the gifted. This mode is characterized by

- Planning involving the total school staff;
- Attention being apportioned to each individual since the needs (even in this homogeneous group) are greatly varied;
- Differentiated curriculum and delivery being provided;
- Teachers usually being trained and/or selected for work with the gifted.

Advantages

- Regular curriculum and important teaching processes can be well integrated.
- Specialized materials are routinely provided.
- Teachers can focus on instructing gifted children, thus facilitating expertise.
- Students receive constant stimulation facilitating learning and thinking.
- Professional isolation is reduced. Collegial enthusiasm spreads.
- Base for professional judgement is broadened.
- Accusations of elitism from peers are reduced.

Disadvantages

- The charge of elitism among community members and professional colleagues may become a larger issue than with other modes.
- Model school role creates pressure for teachers and students.

- Costs are usually greater. Variations in costs are related more to the amount and quality of the special provisions than to delivery modes.
- Gifted children have fewer contacts with age mates.
- Parents may defer responsibility to school personnel.
- Children may have to leave the home community in order to participate in the program.

6. Extra-Credit/Special Projects

Post-secondary institutions use these terms in a somewhat standardized way to indicate that a student may begin a program at a place beyond the normal starting point. Normally, advance credit is granted in recognition of satisfactory achievement in courses having similar content, and the student is allowed to proceed from an advanced point in the program. In some cases, the beginning part of a program is merely waived for a trial period and the student only given credit upon successful completion of advanced courses. On other occasions, an institution will only waive the beginning courses, but the student must still complete the total number of credits for the program by filling in senior courses.

Advanced credit in junior and senior high school can be employed, as well as in universities and colleges, and is one strategy used in recognition of the ability and achievement of gifted students. This is a useful strategy, but has the constraint that liaison between the sending and receiving institutions is required.

Advantages

- Avoids the problem of making a student sit through material that is too simple or has already been mastered by the student.
- Optimum learning time is not wasted on "fillers."
- Students can pursue interests.
- Students are motivated by success and recognition.
- Best choice for junior high.
- At the elementary level, includes special projects on report card in "other" column.
- Flexibility of subjects.

Disadvantages

- May miss some important concept or stepping-stone in the learning process.
- Student is required to work harder for perhaps lower marks because of the more difficult courses.
- Special projects may be difficult to supervise and organize.
- Extra work may have no concrete reward.

7. Provisions Outside the School Day or School Year

Provisions for the gifted may be accomplished outside of the regularly scheduled curriculum in many ways, such as

- Summer seminars being offered on location or at a special "camp"
- Activities being sponsored by colleges, private enterprise, parent groups, schools, or the school district.

Advantages

- Advantages are similar to those of the complete pull-out program.

Disadvantages

- This type of program may simply add to the already heavy load of the gifted child, and possibly detract from established hobbies and interests.

B. Supporting Strategies

The strategies described below are so designated because each can be an adjunct activity to more than one of the modes described above, and because none, by itself, is likely to constitute a program within the meaning of the term as used in this chapter.

1. Resource Room

This term has two usages: gifted students leave the classroom on a regular basis for differentiated instruction provided by a specially trained teacher, and a more flexible schedule of leave from the classroom for independent or directed study facilitated by a specially trained teacher. The first is one form of pull-out mode. The second is an administrative strategy.

2. Mentorships

Students are matched to an adult with expertise and experience in an area of general or vocational interest to the student.

The initial matching, the setting of objectives and continuing encouragement and mediation is normally provided by the school or school system. Since the mentors are usually community members involved in business, arts, or service areas, the programs frequently involve out-of-school experiences. Mentors are usually requested to assist gifted students in independent study projects or acquaint students with their particular area of expertise.

Planning for mentorship should involve the total school staff who will establish the relationship of the school curriculum to the mentorship program. The program should be student-centered, with mentors selected or identified to fit student needs and interests according to established criteria. A district coordinator should maintain a mentor bank and manage, monitor, and evaluate the program. The evaluation criteria should be established prior to student placement.

Work experience credit programs, with appropriate supervision and planning, can be a useful related activity but are not identical to mentorships.

This strategy is compatible with the first four delivery modes.

3. Independent Study

This teaching area is usually preceded by activities designed to encourage students to develop study skills and/or more formal research and investigative skills. The study may be informal and open-minded or more formal, even to the extent of the student entering into a learning contract with specified student outcomes and credits to be awarded by the teacher. This strategy is compatible with the first five modes.

4. Acceleration

Acceleration may be by grade level or by subject, i.e., a student who shows exceptional general ability might be assigned to a level of one or two grades in advance of his or her peers; alternatively a student whose precocity is exhibited in only one or more subjects (usually academic) might be accelerated in those subjects only. Various programs to achieve grade acceleration have been relatively common over the past several decades. Appropriate uses and limitations have evolved and are also known. Subject-related acceleration is a more recent phenomenon, but has some basis in experience, and has spread to many university campuses. Acceleration is not appropriate for more than a limited number of gifted students, although some research indicates that accelerated students are better adjusted socially and emotionally.

5. Extra Challenge Classes and Advanced Placement

There are three general forms of this strategy: honours classes, a special international program called the ‘‘International Baccalaureate’’ (IB), and advanced placement.

Honours classes provide an enhanced challenge in academic subjects but are usually a local provision in a school system or even a single school. These classes exist in junior or senior high schools, but more often in the latter. This strategy is compatible with delivery modes 2-4.

The IB is at the high school level and is designed to take students into college level study. Curriculum content is heavier and more sophisticated. Standards are stringent. The IB program is supposed to carry weight for admission to prestigious colleges and universities in the international setting, hence the name. It is a self-contained program and was not designed for gifted students: i.e., identification and admission to the program is on the basis of academic achievement. In some instances, an IB course could provide a component of a program for a gifted student. It is possibly compatible with mode 4.

Advanced Placement (An Exemplary Honors Model)

This implementation strategy would allow for college level instructional opportunities for gifted and talented high school students. In the United States, students prepare for AP examination, and on the basis of these exams, might earn post-secondary credit at a college or university. This program could help students increase their college options, reduce their years in college if they wish, and launch their careers early. Local discussions should be encouraged between school jurisdictions and post-secondary institutions with respect to advanced placement.

6. Enrichment

Caution should be exercised about interpreting this term, since it has a variety of meanings, depending on its usage by a school jurisdiction. While it denotes enhancement of a program through the addition of experiences fostering greater learning, and connotes quality, it may only be quality beyond a particular base. It can be a lateral or vertical extension of the regular curriculum for all students or for only a few students specifically identified. The gifted student would be a part of the latter group but who is identified to receive the experience. The purpose of the experience and the nature of the experience will determine the quality of the experience for the child. In some jurisdictions, ''enrichment'' is the total program for the gifted and may pay adequate attention to the difference in quality as well as to quantity. It is important to note that teachers need a group in order to provide enrichment activities and opportunities.

There are advantages and disadvantages. It is cheaper. It is not necessary to provide funds for a number of specially prepared teachers of the gifted. It reduces or eliminates charges of elitism, since labelling by peers is not as likely if the gifted stay in their own classrooms. Other students will probably benefit from the higher levels of teaching and questioning which may occur. Paying attention to the special needs of the gifted can alert the teacher to individual needs of other students in the class. It is easy to identify students and they can be included in special activities as their needs and interests indicate. There are two major disadvantages: enrichment activities tend to disappear, and some specialists believe it is difficult if not impossible to provide a ''within the regular classroom'' program or curriculum which meets the needs of the gifted, because such a program or curriculum is different from that designed for other students.

The steering committee of any school might want to form its own definition of ''enrichment'' and specify its expected relationship between enrichment and gifted education.

7. Blended Program (Enrichment)

This is an in-classroom teaching strategy which promotes a positive nurturing environment and assists each individual to maximize his/her potential. Teachers are humanistic, flexible risk takers trained in differentiated curriculum and instruction, questioning to challenge higher level thinking skills, and theme planning. It meets the needs of the gifted by permitting and encouraging their individual explorations. Blended programs are enrichment attempts to teach important thinking skills and their application to prescribed curricular areas.

Following in Table 2 is a summary of delivery modes and compatible strategies.

Table 2
Summary of Delivery Modes and Compatible Strategies within the School Setting

Mode	Description	Advantages	Disadvantages	Strategies
1. Within Regular Classroom	formally identified but kept in the regular classroom	• little change in school organization • no transportation requirements • no student adjustment to new peer group or teacher • can integrate regular and special curriculum	• extra time needed by classroom teacher for program differentiation and for curriculum development • not all teachers can or wish to be involved in gifted education • requires extensive teacher in-service	• resource room • mentors • independent study • enrichment (most often used with this mode but may be used with others
2. Clustering	a modification of (1) where gifted from several classes are grouped in one classroom	• see above • more peer interaction • not all teachers will have to work with gifted	• see above • reluctance of the one teacher to assume the load	• resource room • mentors • independent study • acceleration • honors class
3. Partial Pull-Out	students spend part of each day or week in a class for the gifted (recommended 20%)	• peer group of gifted provides reassurance, mental stimulation, and an extended information base • teachers can focus on gifted education • reduced in-service needs • students still have interaction with normal age group peers	• scheduling presents problems • antagonism from homeroom teachers • antagonism from peers over different educational treatment • increased transportation may be required	• resource room • mentors • independent study • acceleration • honors class • advanced standing/ placement/credit
4. Complete Pull-Out	gifted meet with gifted in separate classrooms or school	• integration of regular and special curriculum • teacher focus is on the gifted, facilitating teacher expertise	• may be concern about elitism among community and professional colleagues • costs	• resource room • mentors • independent study • acceleration • honors class • advanced standing/ placement/credit (most easily used in this mode)

C. Feasible Provisions for School Systems of Different Sizes

The variability in Alberta school systems is great: some systems are isolated geographically and spread over a huge territory; some have many ethnic groups and others have basically only one; some have many students, others have few. The number of students and distance between schools are very important factors in considering programs for the gifted. Three scenarios, with the basic differences being total enrollment, are proposed. In Alberta, there are school divisions, counties, and school districts, the term **'system'** will be used for convenience.

1. Small Systems

The enrollment in these systems is less than 1,000. In Alberta there are 70 such systems. Many extend over large areas. Nine systems have fewer than 100 students.

What kind of program for the gifted is feasible in such school systems? Some school systems have a superintendent and no other administrator between him or her and the principals. Some of the systems will have a part-time superintendent. All will have one or more principals and assistant principals depending on the number and size of the schools.

A number of factors need to be considered.

- It is estimated that 3-5 percent of students are gifted. If a typical system had 100 students, there would be 3-5 gifted students, occurring in any of the Grades ECS-12. The corresponding figures for a system with 500 students would be 15-25 gifted, spread out over Grades ECS-12.
- Whatever is done will probably have to be accomplished by teachers already in the system. The feasibility of adding full-time specialists is not great, although neighboring districts might develop a sharing arrangement.
- One possibility is acceleration. "Rules of thumb" of acceleration are stated below.
    1. Acceleration can benefit the gifted who are socially and physically mature.
    2. Grade acceleration is best done by early admission to school or in the early elementary grades.
    3. Acceleration in specific subjects (e.g., mathematics) at the secondary school level has been found to be very helpful to advanced students.

Other responsibilities include the following.

- Individual Independent Study: The classroom teacher needs help in planning independent programs and needs resources. A part-time specialist, if available, may be able to help here.
- Mentors: For the elementary grades, small group mentorship and the mentors' compatibility with small children are important. The supply of mentors becomes more scarce as the size of the town decreases. Someone must organize the mentorship program: a teacher, the assistant principal, or principal. Often the activities are organized during noon hour, after school, or in Saturday clubs.
- Enrichment: Enrichment usually means such things as extending regular curricular work to deeper levels in the homeroom. It requires teacher guidance of the student's endeavors. It usually means individual work with one or two students — planning, encouraging, receiving communication of results, and arranging presentations to the class. It can be done.
- Enrichment Centres: Many schools already have a resource centre and resource teacher or part-time resource teacher. Some schools will use the resource room for gifted students, as well as other groups, and will conduct inservice education on giftedness for the resource teacher. Procedures are similar to those which have been used to assist the disabled.
- Cross-grade Groupings or Tutoring: This approach can give students contact with intellectual peers. Gifted students of all ages share learning style.

Acceleration, independent study, mentors, enrichment, enrichment centres, and cross-grade groupings, are among the provisions which can be made for the gifted students in small systems.

It is likely that other possible provisions for gifted and talented students will be developed in small systems. The suggestions provided are not meant to be exhaustive.

2. Medium Sized Systems

In Alberta there are 42 school divisions or counties, and 13 districts with 1,000 to 4,000 students. Many of the school divisions or counties have enrollments of about 2,000 students. The districts are mostly in larger towns and smaller cities, and are predominantly Roman Catholic separate school districts, although one is a Protestant separate school district.

What kinds of arrangements for the gifted are feasible in such school divisions, counties, or districts? Most of these will have a superintendent and an assistant superintendent. Some of the larger ones may have one or two other system-wide administrators such as director of student services, director of guidance, and director of curriculum and instruction. Titles vary more than do functions. A typical school system with 3,000 students may have 15 schools, 180 classrooms, and 175 teachers. Typically, there may be 90-150 gifted students spread over grades ECS-12. Among 175 teachers there may be some with experience and/or teacher education for teaching the gifted. There is some possibility of having one or more specialist or catalyst teachers.

What special programs for the gifted are feasible in such systems?

- Every one of the provisions listed as a possibility for small systems can be used: acceleration, independent study, mentors, enrichment, enrichment centres. There is, in larger systems, a greater possibility of using them as components of a program.
- Pull-out, where the gifted are taken out of class for periods ranging from one half hour a week up to about three half days a week, can be used. The students are taught in small groups; individual program plans are made in collaboration with the student; field trips are taken; and special projects are worked on. A special teacher does all this, with various administrative arrangements.

  This possibility tends to meet the needs of the gifted students on a long-term basis. Obviously, it can be merged with the provisions previously mentioned. A careful melding of such provisions can result in an excellent program for the gifted student.
- Special classes or schools can be organized. Educationally such an arrangement is sound. Whether distance would make it feasible is a matter for local decision. The community reaction likewise may vary. Some people would be violently opposed while others would favor such an arrangement.

  Both pull-out and special classes or schools are very visible, the latter more so. It behooves the system to pay very careful attention to identification. Unfortunately, in any system of identification, there are likely to be borderline cases. There is potential for much difficulty.

  One of the advantages of pull-out, special classes, and special schools is that the gifted associate with their peers. They come to realize that they are not alone, and that they are not superior to everybody. They benefit socially and emotionally.

  Special classes may be more feasible than special schools in medium size districts.
- Itinerant teachers may be employed. Specially trained teachers go from school to school to work with gifted students pulled out of classes, with teachers and with program planners.

  Coordination, supervision, and program planning can be arranged. The larger the system, the more likely that someone can be assigned these responsibilities. The better they are done the more likelihood there is of widespread effective provisions and the greater the possibility that provisions can be melded into a genuine program for the gifted. A note of encouragement is appropriate here: even modest provisions for the gifted are of real value. Ask gifted students (or teachers who have had gifted students in their class), and they will tell you that such provisions ''made school come alive for them.'' Students do not perceive them as minimal!
- What are some likely provisions? The most likely are itinerant teachers or catalyst teachers, enrichment centres, enrichment teachers (specially trained resource room teachers, part-time teachers trained for the purpose, regular classroom teachers specially trained, itinerant [specialist] teachers), pull-out of students probably

adding up to half a day per week cooperating and coordinating with the regular classroom teacher, especially on individual program plan projects.

3. Large Systems

This scenario does not include the four largest systems in the province, in which provisions and programs would be quite complex. In Alberta there are 14 school divisions, counties, or districts with student enrollment of 4,000 to 20,000. Six of these have school populations of 4,000-5,000 and the largest has 13,000.

A large school system with 7,000 students might have 24 schools and 400 teachers. In addition to the superintendent, there will be several persons (assistant superintendents, coordinators, directors, or persons with other titles) at the system level. One may concentrate on guidance, another on secondary level; there may be specialists in English, Social Studies, Mathematics, Science, and the Languages. Of course, there may be other arrangements also. However, there will be system level coordinators (perhaps with some other title).

If the system is typical, it might be expected that 210 to 350 students will be gifted, spread over grades ECS-12. Among the 400 teachers, it is very likely that there will be some with experience and/or training in teaching the gifted.

What kind of program for the gifted is feasible in such a system? It could be quite complete. A few important points related to a gifted program follow.

- A first important step would be to appoint someone to coordinate the program for the gifted. Depending on size, this might be a sole assignment, or it could be associated with another. If this person were not already fully prepared, a first or early step would be further education. It could be reading, attending inservice workshops or conferences, university courses, or a combination.
- Make a plan. The coordinator would no doubt be asked to produce such a plan. While this chapter does not constitute a plan, it deals with many (but not all) of the components. Following is a summary of the plan used in the Lethbridge Public School District: (1) Rationale, (2) Definitions, (3) Administrative Design. The plan selected was called semi-separation design, and was defined as the gifted participating in regular class activities for most of the time, but spending a significant part in "differentiated educational experiences appropriate to the student's needs." (4) Program Goals, (5) Student Goals, (6) Program Procedures (especially identification, which was carefully spelled out in detail), and (7) Program Objectives. Perhaps evaluation is needed as another heading to round out a plan. Before making the plan, or as part of it, a survey of resources would be required.
- Gaining support, or selling the plan is necessary. The more key people who participate in developing the plan, the more likely it is to be accepted.

  Decisions on implementation must be made. Decisions to be made at the system level would include the following.

  1. Should it be initiated at once in each grade, ECS-12, or by stages?
  2. What administrative arrangements should be adopted? Within classroom enrichment? Pull-out and special provisions for very limited times; e.g., half an hour per week? separate classes? separate schools? Some decisions could be delegated to the schools, but whether to establish separate classes and separate schools would likely have to be system decisions.
- Depending on the views of the school board and of the superintendent, it might be that many systems of this size would develop an agreed-upon plan, and decide to decentralize programming to the schools. If this were done, the selection, appointment, training, and inservice of specialist itinerant teachers for support would be important. The system coordinator would be called upon to organize in-service education for teachers with gifted students in their classes. Materials would have to be provided for each school, probably on the basis of certain key materials for all and school choice for the rest. Many more tasks than those mentioned would be involved, but the outline presented could lead to a quite complete and effective program.

Table 3
Summary of Feasible Provisions for Different Sizes of School Jurisdictions

	Small	Medium	Large
School Jurisdiction Scenario	**1,000 (10) 500 (15-25 students)**	**1,000-4,000 (42) 3,000 (90-150 students)**	**4,000-20,000 (14) 7,000 (210-350 students)**
Potential Provisions	Acceleration →	● →	●
	Independent Study →	● →	●
	Mentorship →	● →	●
	Enrichment →	● →	●
	Enrichment Centres →	● →	●
		Pull-Out (Thinking Skills, Special Projects, Field Trips) →	●
		Itinerant Teachers (Facilitators) →	●
		Special Classes or Schools →	●
			Full-time Coordinator for Program

Relative to the student, perhaps the more important parts of the program in a small school jurisdiction would be teacher awareness and in-servicing, especially in the skill area of locating resources. Educational TV, cross-grade peer tutoring, and exchange student programs should be considered. Parent awareness would also be especially important.

Important program components affecting students in medium size school jurisdictions are school and community awareness of individual needs and learning styles plus program flexibility. The school gifted program can be a valuable personal support system here. High-level subject matter is also important.

In a large school system, important student needs might fall in the areas of identification and counselling for self-understanding and for self-responsibility in career planning.

A Model Incorporating Key Teaching Areas and Thinking Processes with Enrichment and Gifted Education

As indicated in Chapter One enrichment and gifted education are two responses to meet the need of students to develop and apply higher level thinking skills and processes. Enrichment is for all children, while gifted education is for gifted and talented students. The model depicted in Table 4 illustrates that enrichment is a developmental process that begins with the teaching of tool skills. As the tool skills are learned, students are provided with the opportunities to apply them in non-curriculum oriented activities. Finally, students are challenged to apply the tool

Table 4
A Model Incorporating Key Teaching Areas with Enrichment and Gifted Education

	Enrichment and Gifted Education Program/Implementation			
	Needs			
	All Students			Gifted and Talented Students
	Enrichment (Teacher-directed)	→		Gifted Education (Self-directed)
Key Teaching Areas	Teach ▶	Practice (non-curriculum oriented) ▶	Apply Occasionally (curriculum oriented)	Apply Ongoing (differentiated (curriculum)
Personal Growth				
Creativity				
Critical Thinking				
Communication				
Forecasting/ Planning				
Decision-Making				
Computer Skills				
Leadership and Organization				
Independent Study				

skills on an occasional basis to prescribed curriculum activities.

Gifted education is an ongoing response to meet the needs of individual gifted students by applying their tool skills to curricular and non-curricular areas.

The key teaching areas described in Chapter Four can be applied to enrichment and gifted programs. These key teaching areas are **a)** personal growth; **b)** creativity; **c)** critical thinking; **d)** communication; **e)** forecasting/planning; **f)** decision-making; **g)** computer skills; **h)** leadership and organization; and **i)** independent study.

Program Design

The jurisdictional steering committee, after accepting a philosophy and definition, reviewing needs and resources inventories, and considering delivery systems, should design a gifted and talented program plan to present to the board for approval. Ideally this would include provisions for students in all grades, ECS through grade twelve. Such a total plan could be phased in over some years. A very general plan, a statement of board policy, might be asked for early and a more detailed plan presented later.

Before school officials embark upon a new program a board policy decision is required. A possible statement of board policy follows, with comments on each of the underlined phrases or passages at the conclusion. The underlined sections are numbered for convenience.

> *The Board of Education of the County of Erehwon #21, (1) concurring with the Goals of Basic Education of the Province of Alberta adopted by the Legislature in 1978 which states that "The ultimate aim of education is to develop the abilities of the individual in order to fulfill personal aspirations while making a positive contribution to society", adopts as policy the establishment and operation of a (2) challenge program for students with potential or demonstrated special ability in (3) all academic subjects and/or literacy and/or numeracy and/or music and/or the performing arts and/or leadership and/or entrepreneurship, and with demonstrated or potential creative imagination and/or creative thinking, and with demonstrated or potential (4) task commitment and self-confidence. The program is to be inaugurated (5) in stages and depth from time to time as the resources of the board permit.*
>
> *The superintendent shall be responsible for establishing, monitoring, and making annual reports on the programs. The superintendent will delegate (6) system-wide responsibility to an appropriate officer or officers of the board, and insofar as the program is school based, to the principal of each school.*

(1) Other possible wording include "accepting" or "consistent with" or "in accordance with." The intent of this portion of the statement is to link board policy to provincially established goals for education. Another possible statement would be "concurring with the policy of Alberta Education that exceptional pupils, whether gifted, talented, or educationally disabled, have particular needs which should be addressed through educational programs and services."

(2) Other possibilities are major work program, able student program, enhanced learning program, simply "program," "educational program" or, if in fact all of the program is to be school based, "school program."

(3) This long section, concluding with "potential," spells out the major manifestations of giftedness. The wording, by indicating parts or aspects, avoids the use of the term "giftedness" or "gifted." If this avoidance is not desired, then the section could be shortened (but made much more vague) by simply having it read "a challenge program for gifted pupils." This part casts a wide net which is feasible as policy because of the implementation section "The program is to be inaugurated in stages and depth from time to time as the resources of the board permit." Another possible statement would be "a challenge program for pupils who by virtue of outstanding ability are capable of exceptional performance and who therefore require differentiated provisions and/or programs beyond the regular school program to realize their contribution to self and society."

(4) A possible addition is "and persistence," but some people see task commitment as including persistence.

(5) While this is a realistic clause it can also be attacked as an escape hatch which would permit progress but with glacial speed. An alternative wording could be "starting in September, 19____" or other appropriate date. Another could be "starting...and proceeding as rapidly as resources permit."

(6) This assumes that there are officers of the board between the superintendent and principals. If this is not the case, a slight rewording will indicate that the superintendent delegates responsibility to the principals insofar as the program is school based.

If such a policy statement is adopted by a board, there would be a clear mandate to the superintendent to implement it. Preliminary discussion with the chairman, and as many board members as possible, is desirable. Above all, they must be informed.

In presenting more detailed programs various program outlines could be used. Some jurisdictions might spend a year on creating awareness and assessing needs. These steps are followed by some school systems:

1. Create awareness of the need for gifted education in the jurisdiction.
2. Develop a comprehensive needs assessment for gifted education in the jurisdiction.
3. Enter the PLANNING PHASE for programs for the gifted.

4. Extract the plan for a pilot program from the Planning Phase Report and prepare for implementation.
5. Conduct and extensive evaluation to provide data for any revision of plans.
6. Expand the program gradually to include students ECS-12.

This is another example of program design outline:

1. Introduction. Briefly state provincial and local philosophy, and briefly state needs and existing resources.
2. Principles and guidelines. Briefly give timeline, preferred delivery system, in-servicing, preferred curriculum, identification process and definition, personnel, and committees. A chart showing the program development timeline could list target student groups, in-service plans: who and what, program development committee mandate, special personnel role and responsibility, and evaluation procedures.
3. Budget suggestions. Make proposals for the first stage of implementation.
4. Summary and conclusion. Request a resolution in support of the program.

Here is a third example of elements that could constitute a jurisdiction's long-range (3- to 5-year) plan.

1. Philosophy and position statement.
2. Needs assessment statement.
3. District definition of giftedness with areas of giftedness to be served.
4. Program goals and objectives for identification, program organization, curriculum, staff develoment, parent-community involvement, and evaluation.
5. Plan of action with activities, responsibilities, timelines, and evidences of achievement for accomplishing the objectives.
6. Budgetary consideration and projections.
7. Appendices, if applicable.

Administration and Staffing

The annotated bibliography that forms part of this manual includes books for administrators which provide comprehensive overviews for designing and implementing programs. Administrative structures for programs for the gifted must fit into existing structures, and be consistent with good administrative practice, and with the nature of the program itself.

So many possibilities are available and the decisions are so dependent on district size and existing organization that administrative structure charts will not be included here. However, in each system the structure should be clear, and communication should reach from teachers through appropriate levels to reach the superintendent and board.

Skills needed by teachers of gifted and talented students are similar to those needed by effective educators in general.

Gifted students' perceptions of the "ideal teacher" are described by Stelmaschuk (1983). Her study was particularly valuable because data were collected by interviews and were based on Alberta students. The conclusions she reached follow:

> *As the data show, these gifted students do not expect their teachers to be "paragons of paragons." However, they do want their teachers to be warm, caring, and enthusiastic, and to relate to them as individuals in their own right. They place primary importance on the personality characteristics of teachers as opposed to the purely cognitive ones. Though being smart or intelligent is important to them, it is secondary to the way in which they present the subject matter. Thus, for them, the social and communication skills of teachers assume primacy over cognitive skills...They are looking for someone who is good at what he or she does, someone who is flexible, open-minded, and accepting of individual idiosyncrasies.*

The following table lists some characteristics to consider when choosing staff for programs. No priority is intended.

Table 5
Characteristics of Successful Teachers

Desirable Personal Traits	Necessary Skills
• Good sense of humor • Good task commitment • Non-defensive attitude • Non-egocentric attitude • Enjoyment of challenge • Willingness to learn • Sensitivity • Visibility as advocate of the gifted • Enthusiasm • Objectivity • Self-assurance • Creativity • Wide-ranging interests • Stamina • Ability to deal with ambiguity, complexity, and diversity	• Ability to recognize varying individual needs of students and to differentiate programs accordingly • Ability to facilitate student learning • Ability to know when an individual child needs counselling • Intimate knowledge of gifted and talented students' traits and programs • Organizational skills • Research skills • Oral and written communication skills • Public relations skills • Skill at developing independent activities • Familiarity with a wide variety of teaching methods • Ability to speak from a broad base of information • Ability to combine cognitive and affective aspects of teaching • Ability to locate resources, ideas, and materials

Classroom teachers involved in the gifted and talented program would likely be responsible for collecting data and nominating students. They should be familiar with the program and sensitive to student characteristics. Teachers should be aware of student interests and participate in drawing up the curriculum and individual educational plans and might carry out instruction. Teachers might draw up instructional units or other materials and be key members in evaluation.

Itinerant and catalyst teachers would probably have more extensive knowledge of gifted and talented education and would share this. They might assist in student identification, planning individual programs, and consulting with classroom teachers, administrators, parents, and students. They would likely assist in the development and choice of program materials and assist with in-service and school and community awareness. These teachers might teach individuals or small groups of students, keep records, and participate in planning and evaluation.

Parents can also be an important support group for the gifted and talented program. They play a primary role in supporting the child and can aid the program by mentoring, tapping community resources, making program suggestions, and participating in evaluation of the program. School professionals can often help the parents in understanding their gifted child. Communication lines should be maintained.

Parent groups such as the Association for Bright Children can support parents and assist the gifted and talented program.

In-Service

School jurisdictions should provide in-service education on the gifted to administrators, regular teachers, itinerant or catalyst teachers, resource teachers, mentors, school psychologists, and guidance counsellors, school board members, community advisory committee members, and parents.

The films listed in Appendix B can serve as interesting introductions to in-service discussions, speakers or workshops.

Teachers and others could be assessed on their needs for in-service and then in-service plans could be made using a form similar to the following:

Table 6
Dimensions of Inservice Planning Model

Planning Stage	Identified Need	Participant Level		In-Service Design	Strategies	Resources	Evaluation
		Teacher	Other				
1. Orientation	Needs of the gifted and talented	Awareness	Administrators Awareness	Release time workshop	1. Lecture 2. Interaction session 3. Decision-making	1. Alberta Education consultant 2. Film (specify) 3. Provincial guidelines for gifted	Oral evaluation and critique
2. Identification	Screening and selection of students	Skill development	Counsellor: skill development	Saturday workshop	1. Simulation on identification 2. Interaction session 3. Case study examination 4. Decision-making	1. Simulation activity 2. Sample case studies, forms, and procedures 3. Professional books	Questionnaire
3. Program Design	Teaching/learning theory models	Production		Summer workshop	1. Lecture 2. Demonstration teaching 3. Unit plan design and curriculum development	1. Teacher of gifted (another district) 2. Sample unit plans 3. Teaching-learning models 4. Instructional materials	Product completion

Date	Time	**Task Assignments** (personnel)
1. April 8 2. May 8 3. July 13	1:00 p.m. - 3:00 p.m. 9:00 a.m. - 12:00 noon 9:00 a.m. - 3:00 p.m. each day	Coordinator of student services will plan In-service sessions and notify participants.

Several studies have shown that the single most important variable in students' success is the teacher. With respect to programs for the gifted, the teacher is perhaps even more vital to their success, because extra effort and expertise are needed in program building. In-service education of teachers who are involved with giftedness is essential if the program is to maintain its vitality.

On the topic of in-service education, it is viewed by some that raising the level of the teacher's competencies in working with the gifted and talented is a fundamental aspect of a total program design.

In-service Considerations

1. They should be used to acquaint teachers with the philosophy of the school and the school district as well as the long-range goals and objectives of the program for the gifted.
2. Teachers should be informed about the district's identification policy and procedure and the extent to which they are, or will be, involved in these matters.
3. Once teachers are knowledgeable about the mix of student characteristics they can begin to adapt or develop the curriculum to meet their needs. Experience has shown that teachers seldom adopt an available curriculum for the gifted without making adaptations. Each program is unique because it is developed by a school district especially to suit the needs and resources of that district. It follows that the teachers must have special help to understand the philosophy and comply with the goals and objectives developed. In-service education is a proven way of providing the needed help.
4. Specific in-service on teaching strategies and curriculum would include these areas:
   - Surveying the available curriculum contents and processes available as well as typical products;
   - Ways of differentiating content, process, and product;
   - Sources of print and non-print materials;
   - Criteria and procedures for deciding on curriculum and activities.
5. In-service sessions should help teachers gain skills in evaluating the progress of gifted students. District policy will prevail in evaluation but here again the teachers of the gifted must be given help in applying the policy to the special programs that have been organized. Very often there are no standardized instruments for measuring the degree of attainment of objectives designed for a special group nor for an individual student. Special procedures are needed to evaluate the special programs.
6. In-service for teachers of the gifted must be a continuous and ongoing process. At no point can a district honestly conclude that there is no need for further in-service work. Programs change, as do policies and instructional methods. The field of education for the gifted is being modified and expanded as new discoveries are made and new theories proposed. In-service work is a way of keeping abreast of the changes.
7. Summer courses or internships should also be considered for in-servicing.

School and Community Awareness

Some believe that public relations should be the first step in program development. It is important.

There are two publics involved: those within the system and those without. The first consists of board members; central administrative staff; other administrators, supervisors; school based administrative staff; other school based staff (librarians, guidance counsellors); and classroom teachers. The second is made up of parents of gifted students and other students, non-parent taxpayers, and other members of the general public. Ideally, the support of both publics is desirable.

Some of the best public relations flow out of ongoing events, as the following examples illustrate.

- The coordinator of the gifted program asked for and got half-an-hour at a principal's meeting. He talked for fifteen minutes and answered questions for fifteen minutes. Depending on the personalities involved, this can be good public relations for the gifted program.
- The superintendent's bulletin, sent to all staff and all board members, included the definition of giftedness approved by the board.
- The local television station telephoned a school system and asked whether they had any examples of gifted education which were quite "visual." As it happened, the system coordinator knew of a gifted boy who was doing a project on medieval fables. He had made a model out of different colors of plasticine, including a castle, moat, dragon, and a knight. In addition, he was animating the story by moving the knight's arm a little and taking video pictures. The local television crew came, took pictures, did some interviews, and featured these on the local news.
- A group project for Division II was "Lives of Great Canadians." A gifted student could select Laurier, Ostler, Banting, Varley, or others according to the student's interest. Each then researched the topic at length, looking forward to a group presentation. This was arranged at a school assembly. Each student actor was dressed as the person he or she depicted, tried to speak like this person, and tried to reflect not only the life but the times. The rest of the gifted students, out of costume but wearing "Press" hats, asked reporter-like questions. It was successful internal public relations, and could readily have included school board members and/or parents.

Public Relations Ideas

1. School Jurisdiction Personnel

- Use of media and/or school assembly to highlight particular projects/products of students involved in a program for gifted/talented.
- Presentations/discussions at administrators' meetings.
- Superintendent's bulletin may highlight the program or key components of it.

2. Other Publics

- Associations for Bright Children groups.
- Presentations to service clubs.
- Articles/interviews in local newspaper.

There are two cautions about developing awareness:

1. Assign responsibility for it to a specific person or committee. Teachers and principals should help but have too many other responsibilities to have time to create all of the awareness that is needed.
2. When contacting the public listen to their views but do not let the program cater unduly to them. The program's philosophy and goals and the students' needs are paramount.

Parents as Facilitators for their Gifted and Talented Children

More attention has been focused on the role of parents as teachers of gifted and talented children. Parents are encouraged to organize, become informed, and work cooperatively with school personnel.

The formation of groups such as the Association for Bright Children (ABC) assists parents in understanding the needs of their children. In addition, periodicals such as the Gifted Children Newsletter and Gifted/Creative/Talented provide pertinent information to parents. Many books for parents are available.

Resources

The titles of the learning resources identified below were provided through the courtesy of the contractor. None of these titles have been evaluated by Alberta Education and their listing is not to be construed as an explicit or implicit departmental approval for use. These titles are provided as a service only to assist local jurisdictions to identify potentially useful learning resources. The responsibility to evaluate these resources prior to selection rests with the local jurisdiction.

Ginsberg (1976) and Graue (1982) *Is Your Child Gifted?*

Johnson (1982) *A Survival Kit for Parents of Gifted Children.*

Kaufmann (1978) *The Creatively Gifted Child: Suggestions for Parents and Teachers.*

Lewis (1981) *How To Be a Gifted Parent.*

Miller and Price (1981) *The Gifted Child, the Family, and the Community.*

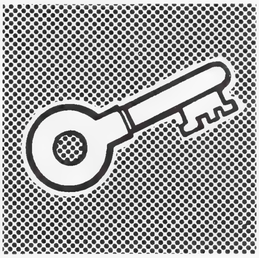
Moore (1981) *Does This Mean My Kid's a Genius?*

Tannenbaum and Newman (1980) *Somewhere to Turn: Strategies for Parents of Gifted and Talented Children.*

Webb, Meckstroth, and Tolan (1983) *Guiding the Gifted Child.*

Summary of Keys to Program Success

- Provide a strong school base and strong administrative support.
- Make the program an integral part of the total school planning.
- Clearly state the philosophical base and program goals.
- Respect choices of parents and students.
- Provide adequate staffing and materials.
- Provide well planned and sustained in-servicing.
- Develop community awareness of individual differences and needs.
- Carefully develop plans for identification, curriculum, and evaluation.
- Use multiple identification data; avoid labelling students.
- Do not attempt too much too quickly.



The following outline could be used in drawing up a handbook for the program for the gifted and talented:

A. Definition of Gifted and Talented

B. Introduction
  Principal's Message
  Philosophy
  Goals and Objectives
  Characteristics of Gifted

C. Identification Procedures
  Referrals
  Nominations
  Testing
  Selection of Students

D. Administrative, Organization, and Support Staff
  I. Administrative Staff
    Coordinator
    School Counsellor
  II. Support Staff
    Parent
    Mentors

E. Curriculum Strategies and Focus
  Curriculum Purpose
  Program
  Performance Objective

F. Evaluation of Program
   Student Evaluation
   Program Evaluation

G. Additional Information
   School Evaluation Policy
   School Organization
   Building
   Communication
   Discipline
   Student Excursion

H. Appendix
   1. Nomination Forms
   2. Developmental Data
   3. School Personnel Data
   4. Principles of Curriculum

Textbooks

According to Torrance (1984), the following textbooks were identified by several university teachers as useful in the understanding of gifted and talented students.

1. The third edition of Barbe and Renzulli's (1981) book of readings, *Psychology and Education of the Gifted.*

2. Barbara Clark's (1979, 1983) *Growing Up Gifted.*

3. James J. Gallagher's (1975) second edition of *Teaching the Gifted Child.*

4. Gowan, Khatena, and Torrance's (1979) second edition of *Educating the Ablest, a book of readings.*

5. Khatena's (1982) *Educational Psychology of the Gifted.*

6. Maker's *Curriculum Development for the Gifted* (1982a) and *Teaching Models in Education of the Gifted* (1982b).

7. Sellin and Birch's (1980) *Educating Gifted and Talented Learners.*

8. Tannenbaum's (1983) *Gifted Children: Psychological and Educational Perspective.*

9. Alexander and Muia's (1982) *Gifted Education: A Comprehensive Roadmap.*

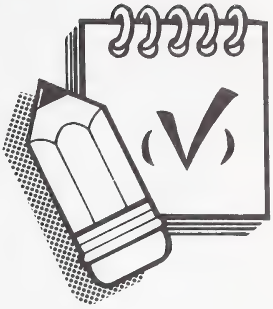
Selected Print and Audio-Visual Resources on the Gifted and Talented

A large number of newsletters, magazines, and journals are available for educators and parents that provide current information, activities, and ideas for working with the gifted. A selected listing of these print materials are located in Appendix C.

In addition, a number of films that are available in Alberta are listed in Appendix B. These can be borrowed or rented for viewing by school staff and/or interested groups in the community.

A dictionary of educational terms related to gifted, talented, and creative education has been written by Frasier and Carland (1982).

Key Elements — Chapter Two



1. Provincial legislation and recommendations.
2. Program rationale (philosophy).
3. Definition of giftedness.
4. Assessment of jurisdictional needs in gifted and talented education and survey of jurisdictional resources.
5. Committee of administrators, teachers, support personnel, and parent/community representations to plan the program.
6. Awareness sessions and workshops on gifted and talented education.
7. Program delivery modes.
8. Scope and sequence of the program — grade levels, areas of giftedness program organization.
9. Long-range plan for education of the gifted and talented with specific plans for first-year implementation.
10. Local board approval and financing.
11. Awareness sessions for total school staff and community.
12. Identification procedures criteria and selection of students for the program.
13. Role of the coordinator, selection of teachers, and roles of other school staff.
14. Orientation for parents of students selected.
15. Training for teachers.
16. Development of individual student plans and curriculum and selection of materials.
17. Program evaluation procedures.
18. Strategies to involve parents and community members.
19. Dissemination of information planning for ongoing acceptance of the program.
20. Evaluation of program objectives and student objectives.

Chapter III

Identification of Gifted and Talented Students

Chapter Three:
Identification of Gifted and Talented Students

"The intent [of identification] should be to provide necessary educational services, not to award membership in a group called gifted."

Gear, 1984

Overview

This chapter deals with identification procedures based upon the definition used and student needs. Preliminary identification procedures common to all categories of giftedness are referrals, nominations, and ability screening. The categories of giftedness adopted by Alberta Education necessitate different approaches to identification. Assessment strategies specific to each of the six categories of giftedness are presented. A flow chart summarizes the identification process. In addition, students who may be difficult to identify are described.

Introduction

The identification process is essentially one of applying the criteria implicit in the definition of gifted students to select those students who require the specific provisions of a program or service for the gifted. Identification is a linking process which must be compatible with both the definition used and the program or services offered, and, as has been stated earlier, these must be compatible with each other. It is somewhat inconsistent to define gifted children multidimensionally, then seek to identify them according to a single criterion in order to place them in a program which primarily addresses a single (but different) area of giftedness. For example, if the definition adopted by a school system is the description recommended by Alberta Education, and the identification procedure is the use of a standardized IQ test in order to place students in a creative writing program, then both identification and program are inappropriate to the definition and to each other.

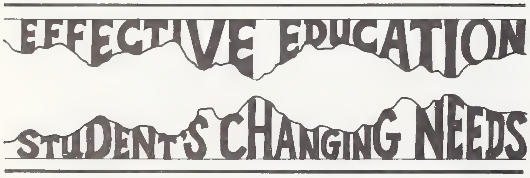
Thus, the very first step in the entire identification process must be the clarification of the procedure in order to ensure that it is, in fact, in agreement with 1) the definition of giftedness, and 2) the program(s) or service(s) to be implemented.

Once these two guiding principles have been observed it is then necessary to specify a process of identification which is both comprehensive and effective. This means that it should ensure the selection of all students who may be defined as gifted for inclusion in appropriately modified programs, while at the same time it should avoid the false identification of students who would not be able to take full advantage of a program specifically designed for gifted students. If the program offering is one of general enrichment, then over-inclusion is not a problem, but if the special provisions have been planned for gifted and talented students, then the student who has been included due to inaccurate identification will be at a disadvantage. Such a student may suffer considerable damage in the area of self-esteem as a result of the unrealistic expectations of parents, teachers, and self.

Identification and Ongoing Review

Giftedness and talent both have a strong developmental component and, as a consequence, identification should be an ongoing process throughout all school grades. It should not be the case that a child considered for inclusion in a Grade 3 program for gifted students but not then identified, should never thereafter be a candidate for other programs. The child's abilities, talents, and needs will change, as also, one hopes, will the direction of future programs. The other side of this coin is that a child identified and included in a program for gifted may not continue to benefit from those particular provisions year after year. The child, of course, continues to be gifted but his or her changing needs may not always be met by a program which is relatively inflexible. Thus, the identification process should be supplemented by a process of review — which again seeks to tie together definition and program provisions.

Since the needs and interests of gifted children vary over time, the identification process consists of an ongoing review of children involving the children themselves, their parents, peers, and teachers. It is not a matter that ''once identified as gifted the educational needs remain constant,'' nor is it ''not identified as gifted at a particular time, using a particular method, means never to be identified as gifted.''



Identification of Needs

Although identification is often considered to focus primarily on the selection process, a far more valuable aspect of the entire procedure is the identification of student needs. If the needs of the student are specified as a result of the identification process then the ensuing program can be planned much more effectively with a correspondingly greater probability of success.

It should now be quite evident that the identification of gifted and talented students is not a simple matter of administering a test, establishing a cut-off score, and dividing the student world into gifted and non-gifted. If it is to be done well — i.e., comprehensively and effectively, and in accordance with the requirements of the definition to be used and program to be provided — then a number of factors must be taken into consideration in the design of the total identification process to be adopted and the procedures to be followed.

Steps in the Identification Process

If the definition of giftedness to be used is the description recommended by Alberta Education, then it is quite apparent that different categories of giftedness or talent are recognized. Each category necessitates a different approach to identification, but there are preliminary procedures common to all.

- Referral (or nomination) by teacher, parent, self, peer, or other individual. Of these referral sources, the first two are the most usual.
- Screening of the general student population. This is necessary because giftedness can more easily be hidden or overlooked than can exceptionality in the so-called problem or deficit areas.

Both of these are means whereby students can then be involved in

- The complete identification process which involves an in-depth analysis of the student's skills and functioning in the category (or categories) of giftedness under consideration.

I. Referral or Nomination

1. Teacher Referral

The logical person to suggest that a regular program may not be meeting the needs of a student is the teacher. However, there is a tendency for teachers without training or in-service in this area to refer the student who "does good work" and conforms to expectations — and conversely to miss the gifted student who may be quite different in both of these respects.

How can the teacher become a more accurate "spotter" of the gifted and talented?

a) Use of standardized rating scales or checklists may serve to focus and give a greater degree of objectivity to the teacher's assessment of the student in such areas as academic achievement, motivation, creativity, leadership, and organizational ability.

b) In-service and professional development which is directed towards the nature and needs of gifted students helps teachers know what to look for and has a pronounced effect on the accuracy of teacher referrals.

c) The use of enrichment strategies in the regular classroom can add a diagnostic dimension to the teaching process, providing students with an opportunity to demonstrate ability which may not have surfaced in a more traditional teaching situation.

2. Parent Nomination

Parents, knowing their children in a different setting from the school, may be aware of indications of giftedness which for a variety of reasons have not been manifested in the classroom. The information obtained from parents, pooled with that derived from the teacher's observations provides a more extensive basis for subsequent identification procedures and program recommendations.

What about parents who over-estimate their child's potential? Many parents can be quite objective and accurate concerning their assessment of their child's ability. However, parents generally do not have the broad basis for comparison with other children of the same age which is available to teachers. Precocious development can be mistaken for giftedness. If there is a difference of opinion between parent and teacher, it should be resolved by the next stage in the identification process: the in-depth assessment.

3. Peer Nomination

Sometimes a friend or classmate may be more aware of a student's qualities and attributes than either the teacher or the parents. Tapping into this referral source may be accomplished informally by listening for significant comments which may be made casually, or more formally by eliciting nomination according to certain criteria or by the use of socio-metric instruments. A sample is included in Appendix D for elementary, junior high, and senior high school students. These forms should be adapted to meet local needs.

4. Self-Nomination

On occasion a student may voluntarily and independently ask to be considered for inclusion in a modified program, apparently because of a self-perceived need. This may or may not be accurate, but it certainly warrants further investigation by way of the identification process. If nothing else, self-referral can point to an independence of spirit and a high degree of motivation.

5. Other Sources of Nomination

This category may include individuals who, although somewhat removed from the student's immediate environment, may have good reason for suggesting that the student, because of high potential in some area, may benefit from an appropriately differentiated school program. Examples of such individuals would be doctors, nurses, social workers, counsellors, and employers.

II. Screening of the General Student Population

Most referrals to special education programs are made because of easily recognized deficits or disabilities. Students with 'problems' spring to the attention of the teacher. Gifted students, on the other hand, may not demonstrate their abilities or talents to any great extent and may not readily be distinguished from the 'average' by any of the referral sources listed above.

Consequently, the referral process should be supplemented by a screening of the general student population, particularly with respect to intellectual ability — this being an area very likely to be overlooked in an underachieving gifted student. Such a screening would be made by means of a group ability test — preferrably one with high validity — to be administered at certain grade levels (to be determined by the school jurisdiction) to all students. Some group ability tests are listed in Appendix E. Those students with high scores, at least at the 90th percentile, who have not hitherto been referred as possible gifted students may then be brought into a subsequent, more definitive, identification process.

III. Identification Process Through In-Depth Analysis

The intent of this stage in the identification process should be the identification of the student's needs so that appropriate program modification may be made on the basis of those needs.

The high degree of variability in the gifted and talented population has been stressed throughout the manual. Not only are there different areas in which giftedness and talent may be manifested, but there are wide variations in the nature and needs of the students in each of the delineated categories. In order to arrive at an assessment of the way in which a student is, in fact, gifted and, consequently, what his or her needs are, it is necessary to accumulate as much relevant information as possible. To this point in the identification process, a certain amount of information has been obtained in the course of the referral and screening procedures outlined above. It is useful now to pull this together and supplement it with further information on the student's achievement, interests, and learning styles. An organizational format should be devised which allows for ease of collection and review of information. There are many ways of developing such a format according to the school's requirements and the teacher's preferences. One example of an approach to information gathering is as follows:

Table 7
Organization of Data and Information

I. Teacher Observations and/or Ratings	II. Available Test Data (e.g., Abilities - Intelligence - Aptitude)						III. Present and Past Achievement Levels		
	Test	Area	Date	Age	Grade	%ile	Enter grades for reporting periods as indicated.		
Learning									
Motivation								Current Status	Previous Final Grade
							Communications		
Creativity							**Mathematics**		
Leadership							**Social Studies**		
							Science		
Artistic							**Art**		
Communication							**Music**		
							Physical Education		
Planning							**Drama**		
Study Skills							**French**		
							Social Awareness and Responsibilities		

continued

Table 7 (continued)
Organization of Data and Information

IV. Interests	V. Learning Styles	VI. Additional Relevant Information
Derived from discussion with student or from completion of interests inventory (indicate which).	Derived from discussion with student or from completion of learning styles inventory (indicate which).	**Source:** Parent Peer Student Other

In this two-page plan, considerable flexibility is permitted in the means of obtaining information.

Column I - The teacher is asked to comment on certain aspects of the student's functioning. The selected areas correspond to those addressed in a frequently used scale for rating the behavioral characteristics of gifted students. One such scale is the Renzulli-Hartman "Scale for Rating Behavioral Characteristics of Superior Students" (1971). Thus, the teacher has the choice of using this instrument (or parts of it) or commenting from a more informal standpoint on these same aspects of student behavior.

Column II - Test data which may exist on the student is summarized. Rather than being tucked away in a file in the office it is added to the bank of information being gathered, and contributes to what we need to know about the student. This may include results from group intelligence, ability, achievement, and aptitude tests. See Appendix E for references to these tests.

Column III - The student's present classroom achievement in the various subject areas is summarized which also takes into account the previous year's grades. Any significant fluctuations in achievement add to our knowledge of the student.

Column IV - An unusual interest may be an indicator of giftedness, as also may be the degree to which an interest is pursued. Furthermore, although a student's interests can be important in identification, they are essential in good program planning. In determining the range of interests, an inventory may be used (either standardized or locally designed) or the information may be obtained by informal discussion with the student. A sample interest inventory for elementary students is located in Appendix F.

Column V - Knowledge of the ways in which students learn best can also be useful in both identification and in program design. Some of the dimensions of learning styles which may be considered are the visual, auditory, and kinesthetic modalities, together with preference for particular instructional strategies: Does the student like working alone or as a member of a pair, or a group? Does the student like direct teaching or does the student prefer studying independently?

Column VI - There may be other information which is very relevant to the identification of and planning for a student and this may be sought from (or volunteered by) a variety of sources, including parents, friends, counsellors, medical doctors, employers, and tutors. A brief synopsis of any such information may be recorded in this column, thus rounding out the picture that we have of the student to this point.

Now that we've got it, what do we do with it?

The amassed information should now be indicative of the type of giftedness which the student exhibits, and a decision may be made at this point as to whether further, more definitive steps in the identification process should be undertaken. It may well be that the recorded information indicates that the student's present program is meeting the needs quite well. Alternatively the information obtained may provide the basis for the design of an appropriately differentiated program of general enrichment. However, if it is apparent that further assessment is required in order to 1) identify the student as gifted or talented, 2) specify needs, and 3) plan a program which will meet those needs, then the next stage will depend to a large extent on the resources of the school or the jurisdiction. The area of giftedness or talent under consideration is also a major factor in the choice of the 'next step' in identification.

I. General Intellectual Ability

1. Psychological Assessment

It is generally accepted that the best and most definitive method of determining the level of intellectual ability (or general intelligence) is the individual psychological assessment. Most of the other methods of identifying this type of ability are evaluated in terms of how closely they correlate with an individually administered intelligence test.

A common misunderstanding is that all intelligence tests, whether group or individual, give substantially the same information — usually indicated in the form of an IQ score. However, the information derived from an individual test, administered by a psychologist, is far more comprehensive and accurate than that obtained by a pencil and paper group test, and it is less affected by other variables such as reading ability, test anxiety, and cultural difference.

Types of Individually Administered Intelligence Tests

There is a range of such tests, the choice of which is generally determined by the psychologist who is conducting the assessment. See Appendix E for a summary of potential tests. Perhaps the most frequently used instrument is the WISC-R (Wechsler Intelligence Scale for Children -Revised) and teachers who are responsible for the planning and implementation of programs for gifted students identified by this means will find it useful to have a brief description of the test.

Age Range of WISC-R

It may be administered to students between the ages of 5 years and 16 years inclusive, although many psychologists prefer to use other instruments at the extremes of this range (e.g., Stanford-Binet for young children and WAIS [Wechsler Adult Intelligence Scale] for 16-year-olds).

Test administration requires approximately 1½ hours in a quiet location away from the classroom. There are 12 subtests, each assessing a different component of intellectual functioning; 6 of which are verbal and the remainder performance, or non-verbal. The student is not required to write down answers (only one subtest requires the use of a pencil) as the psychologist records all responses — which are either orally given or manipulative in nature (i.e., the solution of problems by arrangement of test materials). About half of the subtests are timed, but the time allotments are very generous (bonus points are accorded for speedy and correct completion of some tasks). Most students thoroughly enjoy the test situation — many do not even realize that it is a 'test' as it is quite unlike their usual classroom test activities. There is also ample time and opportunity to establish rapport between psychologist and student, thus decreasing the possibility of anxiety and its adverse effects. Because many of the subtests do not rely on language, there is far less discrimination against culturally different students than is the case with most paper and pencil group intelligence tests.

How Are the Results to be Used?

The test yields a Verbal IQ, a Performance IQ, and a Full Scale IQ together with a student profile derived from the separate subtest scores. Perhaps the least important piece of information from the point of view of planning a differentiated program for a gifted student is the Full Scale IQ. A group of students could be selected all with virtually the same Full Scale IQ, but because of very different profiles and subtest scores, would have greatly differing needs and thus would not all require the same emphasis in the design of their programs. In addition to the largely cognitive data derived from subtest scores, the skilled psychologist may also obtain valuable information concerning the student's affective functioning, problem-solving strategies, and divergent thinking abilities. All of this information should be conveyed to the teacher in the form of a report which should then be a key element, not only in the identification of giftedness, but in the determination of needs and in appropriate program design.

If an alternative instrument to the WISC-R is chosen, then an equally useful report will be generated by the educational psychologist based upon the findings of whatever test has been used.

What If a Psychological Assessment is Not Feasible?

Many school jurisdictions do not have access to a school psychologist, and those which do, frequently have students with needs in other areas of exceptionally competing with gifted and talented students for limited psychologist's time, often necessitating a lengthy time interval between referral and assessment. In such cases it does not make sense to put a potential intellectually gifted student "on hold" until such time as definitive identification can be made. There are a number of ways in which the teacher can add to the information already acquired in the initial referral and screening process in order to increase the effectiveness of a) the identification of gifted students, b) the determination of their individual needs, and c) the planning of programs designed to meet those needs.

Teacher Administered Ability Tests

Some standardized instruments are available and listed in Appendix E, which have been developed with the gifted population in mind. These are somewhat more specific than the majority of group ability tests which are given to total school populations, and can be a useful adjunct to such tests.

Teacher Designed Tests

For the teacher who enjoys a challenge and who may feel that a standardized test cannot do justice to a specific student or group of students (e.g., students outside the cultural mainstream), it is possible and useful to design tests which have purely local or even classroom norms with items based upon knowledge and understanding of and reasoning about factors within the community.

Street signs, churches, barbershops, store fronts, etc., can be used to measure recall. The important task in environmental testing is to free the student from exposure to items with which the student has no experience, and to allow the student to concentrate on the task of recall or manipulation of familiar items. A reference for environmental testing is Stallings (1982).

Diagnostic/Enrichment Teaching

Rapidly gaining in popularity among classroom teachers in many areas, is the concept of identification of giftedness through specific teaching strategies. Rather than using general observation or rating scales of classroom routines, diagnostic teaching involves setting the stage in order to ensure a greater likelihood of the gifted student becoming much more evident as a result of planned activities. One of the reasons for the growing popularity of diagnostic teaching could be that such an approach can be combined with a general enrichment unit — thus giving it a duality of purpose which is especially appealing to the often overworked classroom teacher.

Basically, diagnostic teaching involves deciding what attributes of giftedness are to be sought, and then teaching a unit for a period of time which will encourage the demonstration of those attributes. As this approach also involves raising the level of expectation for all students, it is usually beneficial to the entire class as a unit of general enrichment in addition to providing valuable information for identification purposes of the ‘gifted few’.

There can, of course, be a wide range of diagnostic teaching approaches or units depending upon the grade level and degree of subject specificity. An example which is reasonably multi-purpose is given here for purposes of illustration.

A unit on Creative Problem Solving is taught to a class over a period of six weeks with two sessions per week (alternatively it could be used with a smaller group selected as ‘possibly’ gifted or talented students). The process of Creative Problem Solving involves creative and productive thinking, critical and logical thinking, and skills in the affective domain. The students receive training in all of these areas and are then provided with opportunities to apply the skills to problems and activities which may be self-selected or teacher-directed.

Steps in Creative Problem-Solving are as follows:

1. Problem identification,
2. Information gathering,
3. Ideas seeking,
4. Hypothesis formulation,
5. Hypothesis evaluation,
6. Decision-making.

The teacher may assess the students’ functioning in cognitive, creative, and affective aspects of each of these steps by the use of an appropriate rating scale, which may be supplemented by anecdotal comments by the teacher and by additional information obtained from parents, students, and peers. A sample Diagnostic Inventory is located in Appendix G.

Table 8
Summary of Suggested Procedures and Potential Instruments/Techniques for General Intellectual Ability

Category of Giftedness	Suggested Procedures	Potential Instruments/Techniques
1. General Intellectual Ability	• Individual psychological assessment	• WISC-R • Stanford-Binet • WAIS-R • WPPSI • McCarthy Scales • Kaufman ABC • Woodcock-Johnson Ability Battery
	• Teacher administered tests specific to high ability	• Ross Test of High Cognitive Processes • Oregon Academic Ranking Test • AH5 (Group Test of High Grade Intelligence)
	• Teacher designed tests	• Environmental Testing
	• Diagnostic/enrichment teaching	• Creative Problem Solving

II. Specific Academic Aptitude

The student to be identified in this category of giftedness is one who demonstrates outstanding ability in some academic area. Usually this student is not an "all-rounder", and although he or she may be generally intellectually gifted, a high IQ is not a necessary co-requisite. However, the academic talent under consideration should be of a very high order and not just a relative strength demonstrated by the student.

Identification of specific academic aptitude ideally would involve the judgement of personnel appropriately qualified in the area under consideration. For example, a mathematics specialist is best able to judge the extent of mathematical reasoning and insight demonstrated by a student, and similarly, second language ability is most effectively determined by someone with proven expertise in that area.

In many schools and school jurisdictions it is quite feasible to involve such specialists in this aspect of the identification of gifted and talented students.

If a subject area specialist is not readily available, specific academic aptitude may be diagnosed through the use of subject-specific achievement tests. However, some caution must be observed regarding the "ceiling effect" of tests which are directed to the current grade level of the student. More comprehensive information will be obtained by administering tests which are one or more grades higher in the subject area testing program — thereby surveying both abilities and gaps in knowledge.

Table 9
Summary of Suggested Procedures and Potential Instruments/Techniques for Specific Academic Aptitude

Category of Giftedness	Suggested Procedures	Potential Instruments/Techniques
2. Specific Academic Aptitude	• Professional judgement by qualified individual and/or subject area specialist	• Criteria appropriate to discipline
	• Administration of achievement tests (including administration of beyond grade level tests)	Individual • Gates McGinitie Reading Test • Key Math • Woodcock Reading Mastery Test Group • Canadian Test of Basic Skills • Canadian Achievement Test • Stanford Achievement Test

III. Creative or Productive Thinking

The creative thinker is one of the more difficult ‘types’ of gifted students to identify. Although such a student may have a high degree of general intellectual ability, this is frequently masked by a reluctance to perform well on tasks requiring primarily convergent or conforming thinking. Also, creative thinking may well be discouraged both in the classroom, where it may be seen as disruptive, or in the home where it may be perceived as silly. Conversely, however, creative or productive thinking will blossom in an atmosphere in which it is valued and enhanced.

In order to identify students who are highly creative in their general thinking or in some area of achievement, it is possible to use

a) standardized tests,
b) evaluation of products by professionally qualified personnel,
c) diagnostic/enrichment teaching.

Standardized Tests

The best known tests of creativity are the Torrance Tests of Creative Thinking. These two-part tests (available in two alternative forms) assess creativity in figural and semantic dimensions using the criteria of fluency, flexibility, originality, elaboration, and other indices of creative strength. The tests are quite easy to administer but are relatively cumbersome and difficult to score — particularly for the teacher who is unaccustomed to them. However, these tests can be scored by an appropriate qualified individual or service. See Appendix E.

A more recent development in the field of creativity testing is the Creativity Assessment Package, a three-part test devised by Frank Williams. The three parts consist of a test of divergent thinking (12 items, mostly figural in nature, judged as to their fluency, flexibility, originality, and elaboration), a test of divergent feeling (a self-assessment instrument to be completed by the student with the items focusing on attitudes, and individuality), and a test of divergent thinking and feeling related to creativity (a similar questionnaire to be completed by the parent or teacher). The additional affective dimension (extremely important in the area of creativity) combined with the relative ease of administration, scoring, and interpretation makes this assessment procedure both informative and practicable.

Evaluation of Products by Professionally Qualified Personnel

In the opinion of many people, even the best of the standardized tests of creativity are not particularly valid, in that they do not necessarily assess what they purport to test.

The truly creative person — one who in real life demonstrates a high level of creativity, both manifested and recognized in his or her work — may not do well on creativity tests.

Conversely, a high score on the fairly trivial tasks of the creativity test may not be highly predictive of creative ability in later life. Consequently, the judgement of appropriately qualified persons as to the creativity or originality of a student's product may be a more appropriate means of identifying creative ability. As in the case of specific academic aptitude, the person (or persons) selected to assess the student's products should have proven expertise in the area under consideration, and should also have knowledge of what constitutes original or creative thinking in that area.

Diagnostic/Enrichment Teaching

The same deliberate diagnostic teaching strategy used to identify general intellectual ability can also be used most effectively to identify the creative or divergent thinker. A specific attempt is made to teach and enhance creative thinking in the entire group, with specific indicators developed to identify those who demonstrate particular talent and ability. The indicators may be in verbal or non-verbal areas and may be general or subject-specific. Time and space limitations do not permit a lengthy dissertation on the topic of creativity (see Bibliography for references on this topic), but it should be indicated that there are different types or styles — for example, a creative scientist or mathematician will have attributes and patterns of functioning which are quite different from those of a creative writer or artist.

Many teachers will develop their own diagnostic-teaching units for creative or productive thinking, but a useful model to follow is that of Creative Problem-Solving, which may be used in a general way or adapted to meet the requirements of a particular discipline.

An example of a commercially developed program which lends itself very well to the diagnostic teaching of creative thinking is the "Just Think" program by Tyler and de Bono for students between the ages of 3 through 12.

In addition, the usefulness of diagnostic teaching in the identification of highly creative students is its value as a vehicle for enrichment for all students.

Table 10
Summary of Suggested Procedures and Potential Instruments/Techniques for Creative or Productive Thinking

Category of Giftedness	Suggested Procedures	Potential Instruments/Techniques
3. Creative or Productive Thinking	• Administration of standardized tests	• Torrance Tests of Creative Thinking (Figural and Verbal) • Williams Creative Assessment Packet (CAP)
	• Professional judgement of products	• Criteria appropriate to field of study
	• Diagnostic/enrichment teaching	• Thinking Skills for Juniors (Visual - de Bono) • CoRT Thinking Program (Verbal - de Bono)

IV. Visual and Performing Arts

Although the two areas indicated are included in the one category, in practice there are important differences between them, in both identification and in program provision. Consequently, it is probably better to consider them separately.

1. Visual Arts

A high degree of talent in this area is best identified by an individual competent to judge artistic ability, and requires the examination of a range of student products completed over a period of time, preferably using a variety of media. ''On-shot'' identification of artistic talent is neither practicable nor effective. One of the areas of difficulty in the identification of this kind of ability is the fuzziness which exists between 'true' high order artistic talent and a more generalized intellectual ability which expresses itself through visual rather than verbal means. An example of the latter would be a bright, culturally different child for whom English may be a second language and whose culture has emphasized other than verbal means of communication. Such a child may be acutely observant of visual details in the environment and may make use of these, both in problem solving and as a mode of expression. In such a case, the artistic production may be an indicator of general intellectual ability (and as such is a useful means of identification of this category of giftedness for certain kinds of students) rather than specific talent in the visual arts. Hence the need for a 'specialist' to identify such talent, with the classroom teacher providing practical assistance by helping the student develop a portfolio of varied work for subsequent submission to the specialist. Appendix H contains a Student Art Interest Inventory. An excellent resource that describes a number of current programs in visual arts for gifted students is written by Moody (1983).

2. Performing Arts

A broad distinction may be made here between dramatic and musical arts, which should then come under separate consideration.

a. Musical Talent

Very frequently this talent is only disclosed in an out-of-school context when the student takes private lessons, and identification of and program provision for such talent are both beyond the province of the school.

If a school has a good music program — whether it be band, string, or choral — then it is possible for a talented student to be noticed by the music teacher and more specifically identified by an appropriate specialist (who may possibly be the same music teacher). However, it may not be possible for the school or the school system to follow up the identification by the provision of a program which meets that student's musical needs. In such a case, action subsequent to identification may be limited to informing parents of a student's probably potential, informing the student of possible scholarship opportunities or attempting to facilitate financial assistance by other means (e.g., by soliciting the aid of a service club or a foundation).

b. Dramatic Talent

Again, the informed judgement of an appropriately qualified specialist is the best method of identification of talent in this area. Furthermore, it is quite probable that dramatic talent is not readily identifiable until the secondary school years. Unlike artistic or musical talent which can surface very obviously in young children, dramatic ability appears to require the 'seasoning' of at least a few years. Most of the drama specialists consulted concur in stating that early identification of this kind of talent is extremely difficult, due to the fact that many elementary school children will enthusiastically and uninhibitedly throw themselves into acting roles with a facility which does not necessarily endure beyond the pre-adolescent years. Real talent — of the nature which leads to a career in the theatre — may be initially identified by the drama teacher in the junior or senior high school and may receive additional confirmation by an appropriately qualified theatrical expert from beyond the school setting.

Table 11
Summary of Suggested Procedures and Potential Instruments/Techniques for the Visual and Performing Arts

Category of Giftedness	Suggested Procedures	Potential Instruments/Techniques
4. Visual and Performing Arts		
a. Visual Arts	• Expert judgement • Administration of a rating scale • Administration of a survey of interest	• Examination of portfolio of student work • Renzulli-Hartmann • An interest survey
b. Performing Arts		
i) Musical Talent	• Administration of a rating scale • Expert judgement • Beyond school	• Renzulli-Hartmann • Criteria appropriate to musical field • Private lessons
ii) Dramatic Talent	• Expert judgement • Administration of a rating scale	• Criteria appropriate to field • Renzulli-Hartmann

V. Leadership Ability

Before this ability can be identified it must be defined, and a large body of literature without a great deal of consensus exists on the topic. Much of the discussion centres around whether leadership demonstrated during the school years is predictive of leadership in adult life (to date there is not a high degree of correlation). There is also the matter of the extent of the interaction between personality factors and situational factors in the development of leadership ability, and, or course, the variations in styles of leadership. Because of these and many other controversial questions, a universally agreed upon definition of leadership is difficult to attain. It may, therefore, be more constructive to indicate certain general attributes which are not in dispute and to consider ways of identifying them. Social skills and insights, flexibility, sensitivity to the strengths, weaknesses, and feeling of others, organizational and communicative skills, and self-confidence are some of the qualities frequently associated with leadership; various attitude and personality tests can be of use in indicating and assessing these variables.

Leadership ability is so intimately involved with the group's perception of the leader, and nomination by peers is certainly one of the methods of identification. However, caution should be observed that popularity is not a contaminating factor. Consistent performance by the student in situations where acceptance of his or her leadership is demonstrated by the group is also an indicator.

Table 12
Summary of Suggested Procedures and Potential Instruments/Techniques for Leadership

Category of Giftedness	Suggested Procedures	Potential Instruments/Techniques
5. Leadership	• Administration of rating scales	• Renzulli-Hartmann • Gallagher et al.
	• Situational performance	• Provision of opportunities for demonstration
	• Peer nomination	• Teacher designed

VI. Psychomotor Ability

This coordination of mental and physical skill is necessary for high performance in such areas as athletics, dance, and mechanical and technical expertise. It is also an essential component in some highly specialized professions such as dentistry and surgery. The direction taken by individuals with this kind of skill may be dictated by the extent of the physical or mental ability, environmental factors (such as parental encouragement), interest, and motivation. Because psychomotor ability can manifest itself in a variety of guises, the identification of such talent must be related to the specific area in which it is demonstrated.

There will be little disagreement that most schools and school systems provide ample opportunity for the demonstration, identification, and development of talent in the various athletic areas. Consequently, it is probably safe to assume that the identification of athletic talent poses few problems to the physical education teacher or coach.

Dance is a different matter. Most schools can offer neither opportunity for identification nor appropriate programs for students with potential talent in this area. Consequently, the identification of this kind of psychomotor ability is, for most practical purposes, effected in the home rather than the school setting through the medium of private lessons.

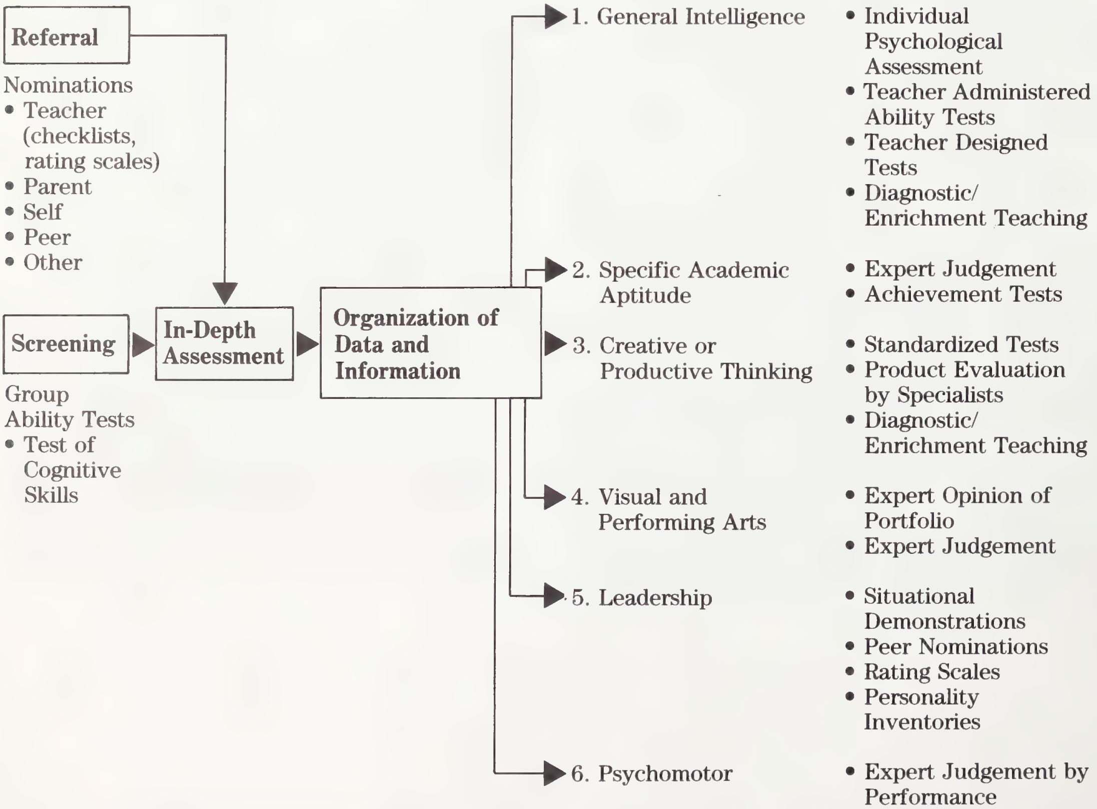
Mechanical or technical talent can be identified in a school situation, usually in the setting in which it is demonstrated, and most often by assessment of the product which is the result of the application of the psychomotor skill. Ironically, some academic-vocational schools fail to realize that they may have a number of gifted students within this category, because they associate giftedness solely with achievement in the more traditional academic areas.

However, it should be remembered that high-order technical ability makes an essential contribution to a large number of areas in industry, medicine, scientific research, and numerous other fields. Advances in aircraft design do not take place without the highly specialized and highly valued skills of the pattern-maker; many discoveries in the etiology of disease have occurred largely as a result of the precision, adroitness, and inventiveness of the histology technician who has developed, to a very high degree, a particular skill demanding eye-hand coordination and spatial reasoning ability in the ‘gifted range’.

Table 13
Summary of Suggested Procedures and Potential Instruments/Techniques for Psychomotor Talent

Category of Giftedness	Suggested Procedures	Potential Instruments/Techniques
6. Psychomotor a. Visual Arts	• Administration of tests • Expert judgement	• Performance scale IQ of Wechsler Series • D.A.T. (Clerical Speed and Accuracy) • GATB (General Aptitude Test Battery)
	• Expert judgement (including athletic ability	• Criteria appropriate to field of endeavor

Summary Flow Chart of Identification Process



Referral

Nominations
- Teacher (checklists, rating scales)
- Parent
- Self
- Peer
- Other

Screening

Group Ability Tests
- Test of Cognitive Skills

Categories of Giftedness	Procedures
1. General Intelligence	• Individual Psychological Assessment • Teacher Administered Ability Tests • Teacher Designed Tests • Diagnostic/ Enrichment Teaching
2. Specific Academic Aptitude	• Expert Judgement • Achievement Tests
3. Creative or Productive Thinking	• Standardized Tests • Product Evaluation by Specialists • Diagnostic/ Enrichment Teaching
4. Visual and Performing Arts	• Expert Opinion of Portfolio • Expert Judgement
5. Leadership	• Situational Demonstrations • Peer Nominations • Rating Scales • Personality Inventories
6. Psychomotor	• Expert Judgement by Performance

Students Who May Be Particularly Difficult to Identify

The myth that gifted children are always visible in a classroom situation continues to be perpetuated, despite the fact that numbers of them can remain undetected under normal classroom conditions. These are the children who, for a variety of reasons, do not demonstrate their considerable potential, and are perceived by their teachers as average — or in some cases, below average — students. "Undercover" gifted students such as these may be found in any of the following groups, and their identification depends in large part on increased understanding and sensitivity by the teacher of the nature of those groups.

I. Culturally Different Students

In Alberta today there are large numbers of students whose background is different from the cultural mainstream. Some of them are recent immigrants, some of them may be second generation, and others are native Albertans or Canadians. Obviously, there are many differences between the various cultural groups, and usually those groups whose values are most unlike those of the dominant culture are the ones whose gifted children are the most difficult to identify. If the culture is one in which verbal facility is less highly regarded than other abilities, then it is quite likely that the children of that culture will develop other means of expression and communication to a high level. Unfortunately for these children, the present educational system places a high value on verbal skills, and school achievement is closely correlated with verbal ability. It may, therefore, be the case that a student with very high ability in such areas as spatial reasoning and abstract non-verbal reasoning, but with relatively poorly developed vocabulary and background of general knowledge, achieves at an average or below average level in a traditional classroom setting. It is only by giving that student the opportunities to demonstrate skill in the area of his or her strengths that the teacher will be able to discern indicators of giftedness which would then prompt further steps in the identification process. In many cases, the art work of a culturally different student is one of the first pointers to the possibility of intellectual giftedness, as the student is expressing himself in this way rather than verbally.

Some teachers may be directly involved with the education of students who are in a very clearly delineated cultural sub-group, e.g., the Hutterites. As these children are educated apart from the mainstream, the problem of identifying them as gifted or talented within the broader context of the general student population does not arise. However, it is likely that there will be the normal distribution of ability and talent within the group itself and, whereas the more gifted individuals may not be readily identified by standardized instruments, the teacher should be aware that there will be students with high potential in certain areas. Those areas may be closely related to the values of their sub-culture and one of the cautions to be observed by the teacher is the recognition that they may be different from the more widely accepted categories of giftedness which are associated with prevailing cultural values. As these children will grow up in an environment with a very specific focus, the abilities and skills regarded as desirable by their society will be the ones which will stand them in greatest stead as adults in that society. Accordingly the teacher, working from a knowledge of the mores of the community, should be sensitive to the nature of valued abilities and skills and alert to indicators of their presence. For example, spatial reasoning ability, psychomotor coordination, mathematical and accounting skills will contribute to success in farming; similar psychomotor skills may be applied to the sphere of home economics for students who will later assume other societal values and responsibilities.

If the student is one for whom English is a second language (and possibly very recently encountered) then there may be an added difficulty in the identification of potential giftedness. This student may actually have high verbal ability — but in his own language; consequently, identification may be delayed until the student has learned enough English to enable him to cope with (and possibly seek what may be beyond) his school program. Such a student may actually demonstrate his high level of verbal ability by the speed of acquisition of the English language. See Appendix E for a list of non-verbal ability tests.

II. Economically Deprived Students

Students who come from backgrounds with fewer material advantages than those of many other children, may also demonstrate relative weakness in their expressive and receptive vocabulary and in their general knowledge. Their early childhood experiences may have been more limited, with less exposure to reading, travel, and other activities taken for granted by fellow students from homes with more financial resources and possibly high levels of parental education. They are thus frequently at a disadvantage in comparison with other students in many learning situations, and those with high intellectual potential may not have an adequate base of facts and concepts, and may become underachievers. Identification of these students may begin by the provision of opportunities for them to exercise their reasoning ability in situations which are not dependent on either well-developed language skills or broad general knowledge. The CoRT Thinking Program is excellent for this purpose.

III. Learning Disabled Gifted

This phrase is often thought to be a contradiction in terms: how can a child who is learning disabled also be gifted? The answer is, quite easily if we do not regard the Full Scale IQ as the indicator of giftedness but instead look for the discrepancy between Verbal and Performance IQs. Most children categorized as learning disabled will have had a psychological assessment. Those who demonstrate a major discrepancy between their Verbal and Performance abilities, with the Performance skills at a very high level, should be considered in the light of being gifted in addition to being learning disabled.

IV. Physically and Sensory Handicapped Students

Like the hearing disabled child, the handicapped child is frequently regarded primarily in the light of the deficit area, often to the extent that giftedness or talent may be completely overlooked. However, it could be vital to the well-being of the child to recognize and develop the high potential which may be present, as the options of a child in this category are usually severely restricted. Many avenues are closed to a physically or sensory handicapped student (depending, of course, upon the nature and extent of the handicap), but the development of intellectual giftedness or a particular talent may afford expanded opportunities for accomplishment with accompanying heightened self-concept. Furthermore, the gifts or talents may be vehicles for circumnavigating the blocks to learning often created by the various kinds of handicap.

These children have frequently had some form of psychological or in-depth assessment which, on closer examination, may reveal indications of giftedness in some area.

V. Young Children

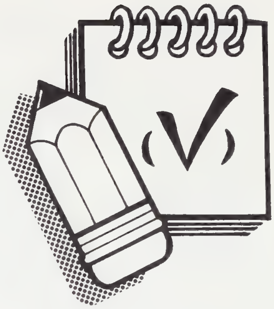
In the early school years, the child's background and environment exert a profound effect on the development of functioning in the cognitive and affective areas and consequently in school achievement. A child from an advantaged, middle-class family which places a strong emphasis on verbal development may enter school with an advanced vocabulary, a good attention span, and many social skills. This child may be a stand-out among classmates who have fewer experiences with school-related tasks and expectations, and may thus be regarded as gifted. An individual psychological assessment may yield an IQ score which is in the gifted range, and which is perfectly valid for the child at that stage in his development. However, the possibility should be considered that precocity could play a part in the child's functioning, and an IQ derived at an early age should always be regarded to some extent in a tentative light and not as an absolute indicator of high ability or giftedness for all time. The child may indeed, continue to function in the gifted range, but some children, when reassessed later, lose the initial advantage which they had over their age mates (after they have all had a few years of commonality of experience). The resulting drop in IQ should be regarded neither as an indicator of diminishing ability nor of the detrimental effects of school; it is simply that an early comparative imbalance has been adjusted. Program implications are that children identified as gifted early in their school career will benefit from an appropriately modified program at that time, but the level of expectations for them may be adjusted in later years as warranted by their changing needs.

Conversely, children from different backgrounds often come to the school situation with poorly developed verbal and social skills which may mask high levels of intellectual ability or other talents. The effect of a relatively impoverished home background may be overcome after a few years of exposure to school experiences, with the result that the child may then be more readily identifiable as gifted.

VI. Underachievers

A gifted underachiever is one who has the potential for greater accomplishment than is actually being demonstrated. Underachievement may be mild (the student attains high marks by doing what is expected and no more), moderate (achievement is at an average level, but considerably below the ability level), or severe (when the student may be failing grades or has not learned a skill, such as reading, in the usual time taken by an 'average' student). The reasons for underachievement are many, varied, and complex: some of them are indicated in the above descriptions of ''hard-to-identify gifted students''; many children who are disadvantaged in one or more ways are, almost of necessity, underachievers in the traditional school setting. There are also many children who are not represented in any of the usual categories of 'disadvantage' but who, for some other reason, are not achieving at anywhere near the level of which they could be capable. They may be described as unmotivated, lazy, careless, hostile — and are sometimes only detected as gifted when referred for assessment for other reasons. Causes may be related to home dynamics, school factors, or personality variables (it is almost always associated with a low self-concept). The whole area of underachievement is both broad and complex: identification, although difficult, is a necessary preliminary for subsequent educational intervention (which is even more difficult) designed to turn the situation around so that the child may attain his potential).

Key Elements — Chapter Three



In order to make sense out of the many complex factors involved in the identification of gifted and talented students, it may be useful to offer a brief review of the considerations in this chapter.

1. What definition of giftedness are you using?
2. What kind of program do you intend to offer?
3. Remember that the educational needs of the students will vary, and it is important to determine what they are.
4. In the nomination process, remember that
   a. teacher referrals will be more accurate as a result of
      - rating scales/checklists,
      - in-service,
      - use of general enrichment strategies;

   b. self-referrals, together with referrals from parents, peers, and others provide useful information and should be given consideration.
5. A general screening of the total student population may uncover gifted students overlooked in the nomination process.
6. In-depth assessment should be undertaken for those students highlighted by nomination and screening and should be prefaced by gathering together all relevant existing information — which will indicate in which area (or areas) the student is likely to be gifted or talented.
7. If you are looking for confirmation of, and information about, general intellectual ability, you may
   - refer to the school psychologist,
   - use appropriate teacher administered tests (either standardized or teacher-designed),
   - use diagnostic/enrichment teaching.
8. For the identification of specific academic aptitude, you may
   - refer to an appropriate specialist,
   - use specific achievement tests.
9. For the identification of creative or productive thinking ability, you may
   - provide a classroom climate conducive to such thinking,
   - use standardized tests,
   - have student products evaluated by qualified individuals,
   - use diagnostic/enrichment teaching.
10. For identification of talent in the visual arts, you may
    - help students develop a portfolio,
    - submit a portfolio to a qualified specialist,
    - use an Art Interest Inventory.
11. For the identification of talent in the performing arts, remember that
    - both musical and dramatic talent are best identified by an appropriate specialist.

12. For the identification of leadership ability, you may
    - use instruments which assess attributes associated with leadership,
    - consider peer nomination,
    - provide situations where leadership and its acceptance can become evident.
13. For the identification of psychomotor ability, remember that
    - athletic performance usually comes to the fore in the regular physical education program,
    - mechanical or technical talent should not be disregarded and that such talent may be demonstrated in non-academic or vocational sujects areas.
14. Some gifted or talented students are quite hard to identify, as their ability may be 'potential' rather than demonstrated. They could be
    - culturally different,
    - economically deprived,
    - learning disabled,
    - physically or sensory handicapped,
    - very young, or
    - underachievers for other reasons.

Identification of such 'potentially gifted students' depends to a large extent on the teacher's understanding of the factors which may militate against achievement in the context of usual classroom activities. The use of alternative strategies may uncover ''hidden treasures'' hitherto unsuspected.

Chapter IV

Provision of Programs/Services for the Gifted and Talented: Important Thinking Processes, Experiences, and Curricular Models

Chapter 4:
Important Thinking Processes, Experiences, and Curricular Materials

"In my estimation, one of the most promising curriculum frontiers is to be discovered in efforts to provide for, and give credit for, self-initiated learning."

Torrance, 1961

Overview

This chapter identifies nine key teaching areas considered to be significant processes for enrichment and/or gifted education. These nine teaching areas are personal growth, creativity, critical thinking, communication, forecasting/planning, decision-making, computer skills, leadership and organization, and independent study. Each of these nine teaching areas is described and presented in table format which includes appropriate grade levels, student tool skills, possible student products, teaching methods, and relationship to the Alberta provincial curriculum. The following curriculum models are presented: Bloom, Taylor, Renzulli, Betts, and Williams. Research is reported on learning styles with potential implementation for the gifted. Finally, the importance of providing guidance and counselling services to the gifted and talented is discussed.

Introduction

Traditionally, schools have been and continue to be places where students go to learn. However, to prepare students to function effectively in the society of the future, thinking skills must augment and accompany the learning process. As early as 1960, Torrance was arguing for the need for curriculum reform. Speaking at a conference that year, he said that schools of the future would have to be designed not only for learning, but also for thinking. Research evidence is clear that to become a fully functioning and contributing adult one must have skills in a number of significant areas, such as academic, creative, decision-making, communication, forecasting, human relations, and planning. Schools must provide opportunities for students, particularly the gifted and talented, to develop these significant areas. Thinking skills need to be implemented deliberately and carefully, and designed to augment the existing Alberta curriculum. Scholars in the field of gifted education (Schernail, 1980; Weaver and Wallace, 1980) indicate that schools must adapt to and plan for future developments. School should help the gifted and talented acquire the important skills of personal growth, creativity, critical thinking, communication, forecasting/planning, decision-making, computer skills, leadership and organization, and independent study.

The development of the Future Problem Solving Program has been motivated by a belief that we have reached a point in civilization at which education must devote a considerable part of the curriculum to helping students enlarge, enrich, and make more accurate their images of the future.

Torrance, 1980

Opportunities for multi-cultural groups, such as Natives and those new to the country, need to be considered when developing and implementing programs. Exploration of their cultural heritage may be a component of study for exceptional cultural students.

The literature and research on gifted education indicates that there is not "one best" curriculum method for teaching gifted students (Kaplin, 1982). Therefore, a combination of teaching areas is recommended as the basic components of programs and/or services for the gifted and talented. These areas can enhance and develop student skills for effective life-long learning and fulfillment of personal goals. The interdependent nature and complexity of society offers fertile areas of study for gifted and talented students. In addition, the understanding and potential resolution of global issues and related citizenship skills can be a focus of study through individual and group projects.

There are nine key teaching areas which have been identified as core components for gifted programs:

- Personal Growth
- Creativity
- Critical Thinking
- Communication
- Forecasting/Planning
- Decision-making
- Computer Skills
- Leadership and Organization
- Independent Study

These nine components are suggested as core teaching areas which promote the following basic principles for gifted and talented learners:

- emphasis on the individual strengths of each student
- positive self-esteem is encouraged and facilitated
- core components are based on the strengths and interests of the student
- students are involved in guided open-ended learning experiences
- responsibility for learning is placed on the student
- experiences which allow students to develop into life-long learners are encouraged
- teachers are facilitators of the learning process as well as dispensers of knowledge
- learning is multi-disciplinary
- students integrate and apply the basic skills
- higher level thinking/questioning skills are nurtured
- content topics are broad based with emphasis on real life themes, problems, issues, and ideas
- some time restrictions of the school are removed for in-depth learning
- students develop original products
- students use a variety of library and community resources
- individual and small group situations are provided.

A brief description of some curriculum models may be helpful in determining a possible teaching framework for the nine core areas. These are

1. Bloom's "Taxonomy of Cognitive/Affective Educational Objectives"
2. Taylor's "Multiple Talent Approach"
3. Renzulli's "Enrichment Triad Model"
4. Betts'/Knapp's "Self-Directed, Autonomous Learner Model"
5. William's "Model for Implementing Cognitive and Affective Behaviors".

These models may serve the needs of gifted students, depending upon the nature of the gifted program within each school jurisdiction or individual school. The core teaching areas, the basic principles, and the curriculum models will contribute to the development of an effective program for gifted and talented students. In addition, learning styles are discussed as well as importance of providing guidance and counselling services for the gifted and talented.

Key Teaching Areas

The nine key teaching areas identified and elaborated upon in this chapter can be used with all students in an enrichment setting, as well as serving as important thinking processes for the gifted and talented. However, gifted and talented students should spend a greater amount of time in these teaching areas, and would likely apply them in greater depth than their non-gifted peers. The thinking skills embodied in the nine teaching areas can be applied to present provincial curriculum or to non-curricular areas. These thinking skills are considered to be vital in the development of individuals who can function effectively in rapidly changing circumstances.

Table 14
The Relationship of Key Teaching Areas to the Three Levels of the School System

Key Teaching Areas	Levels of the School System												
	Elementary							Junior High			Senior High		
	ECS	1	2	3	4	5	6	7	8	9	10	11	12
1. Personal Growth	●	●	●	●	●	●	●	●	●	●	●	●	●
2. Creativity	●	●	●	●	●	●	●	●	●	●	●	●	●
3. Critical Thinking			●	●	●	●	●	●	●	●	●	●	●
4. Communication		●	●	●	●	●	●	●	●	●	●	●	●
5. Forecasting/Planning				●	●	●	●	●	●	●	●	●	●
6. Decision-Making		●	●	●	●	●	●	●	●	●	●	●	●
7. Computer Skills		●	●	●	●	●	●	●	●	●	●	●	●
8. Leadership and Organization					●	●	●	●	●	●	●	●	●
9. Independent Study					●	●	●	●	●	●	●	●	●

Understanding and Using the Tables of the Key Teaching Areas: A Guide

The key teaching areas are organized in table format as follows:

A. Refers to a key teaching area as determined by educators and reported in the literature. Nine key teaching areas emerged as important factors in the education of gifted and talented students.

B. Refers to levels of the school system in which the teaching area may be directed.

C. Refers to important student tool skills. It is necessary for students to acquire these tool skills within the specific teaching areas.

D. Refers to possible student products. These product areas are only suggestions and are not meant to be definitive or restrictive.

E. Refers to teaching methods. These are only suggestions for the teacher and are not meant to limit the methods a teacher could use. The teacher needs to design activities deliberately to ensure that the key teaching area is covered.

A. Key Teaching Area	B. Suggested Level(s) of School System
	ECS 1 2 3 4 5 6 7 8 9 10 11 12 ● ● ● ● ● ● ● ● ● ● ● ● ● Elementary Junior High Senior High
C. Student Tool Skills	D. Possible Student Products
E. Teaching Methods	

Teaching Area Number One

Personal Growth

Gifted students need to be aware of their giftedness, their strengths and their weaknesses in order to understand themselves and relate positively to others.

The affective domain is extremely important for the total development of the gifted individual. A non-threatening environment in which strengths are recognized and enhanced, individually and among peers, provides the basis for the student to explore and develop his aspirations and goals, and to develop interpersonal skills. The significance of good human relations is a vital component in career satisfaction and promotion. The importance of providing counselling services to the gifted and talented is discussed later in this chapter.

The potential relationship of this teaching area to the Alberta curriculum at the elementary and secondary levels is depicted in the wheel graph below. The subject areas identified may provide some content to be used in teaching the important tool skills. However, non-curricular content or areas may also be used for gifted and talented students.

Teaching Area Number One
Personal Growth

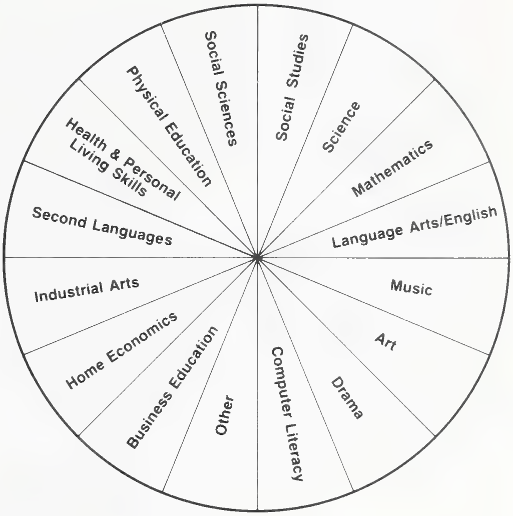


Table 15

Key Teaching Area: Number One

Personal Growth

Suggested Level(s) of School System

ECS	1	2	3	4	5	6	7	8	9	10	11	12
●	●	●	●	●	●	●	●	●	●	●	●	●

Elementary Junior High Senior High

Student Tool Skills

- Self understanding of personal style/learning style
- Ability to communicate thoughts and feelings
- Ability to empathize
- Awareness of values
- Group interaction
- Understanding of child/parent relationship
- Dealing with conflict
- Guidance and counselling
- Career awareness and exploration
- Personal responsibility
- Self-esteem
- Self-expression
- Understanding of giftedness
- Acceptance of the ideas and feelings of others
- Ability to function positively at all levels of the affective domain based on Krathwohl's Educational Objectives
  - receiving
  - responding
  - valuing
  - organizing
  - characterizing

Possible Student Products

- journal
- career study
- panel discussion
- debate
- advertisement using the techniques of persuasion
- role playing
- photography
- recital/concert
- drama
- class/school newspaper
- autobiography
- writing and presenting scripts for radio and TV
- group discussion
- study of famous gifted personalities - past and present

Teaching Methods

1. Student/Teacher Conference
2. Small Group Experience
3. Whole Class Enrichment

Teaching Area Number Two

Creativity

"In almost every field of human achievement, creativity is usually the distinguishing characteristic of the truly eminent. The possession of high intelligence, special talent, and high technical skills is not enough to produce outstanding achievement."

Torrance, 1959

An Image of Wide Scope

Of course, a neat description is not everything. It may not provide something the mind can grasp as a whole and entertain as essence. In fact, we know a way to do that job better — Howard Gruber's notion of images of wide scope. Such images, remember, included Darwin's tree of nature which guided him to his theory of natural selection, and, I suggest, the glow of radium with its puzzle of energy resident in matter. Then why not an image of wide scope for creating?

The image comes with a story. A couple of years ago, my oldest son accosted me with news from kindergarten as I came home from the office. He had learned something about apples and wanted to demonstrate. Out of the drawer came a knife, one of those he was not supposed to handle, and out of the refrigerator a McIntosh. "Dad," he said, "Let me show you what's inside an apple."

"I know what's inside an apple," I said, riding for a fall.

"C'mon, just let me show you."

"Listen, I've cut open lots of apples. Why ruin an apple just to show me something I already know?"

"Just take a look."

Ungratefully, I gave in. He cut the apple in half, the wrong way. We all know the right way to cut apples. One starts at the stem and slices through to the dimple on the bottom. However, he turned the apple on its side, sliced the apple in half perpendicular to the stem, and displayed the result. "See Dad. There's a star inside."

Sure enough, there was. In cross-section, the core of the apply made a distinct five-point star. How many apples I had eaten in my life, cutting them in half the right way and never suspecting the hidden pattern waiting for me until one day my child brought news of it home, out to convert the infidel — and he did.

I have not tried to find out, but I'm sure this star-shaped structure is common knowledge in botany, where no doubt there are students of apples who do dissections of McIntosh and Golden Delicious, nibbling the scraps as they go. Whoever first sliced an apple the wrong way may well have had a good reason to do so, curiosity being one good reason. Or it might have been one of those fruitful — I choose the word carefully — mistakes all of us make sometimes. Whatever the case, no matter. The occasion and process of discovery are not my concerns at this moment. What struck me then and still impresses me now is that this hidden pattern fascinated enough to make its way around. The knowledge of it travelled from unknown origins to my son's kindergarten class and so to me and you. Its very survival and vigor as something to know about vouches for the engagement we find in discovery.

So, if you want to know what creating is for, in part it's for an apple — sliced the wrong way.

Perkins, 1981

A Description of Creativity

Creativity is described generally as using one's resources to develop a novel, fresh solution to a particular problem. The essence of creativity is the notion of "Aha!", meaning the fresh and relevant association of thoughts, facts, and ideas into a new association which pleases.

Creativity can be cultivated in all persons and **can** be deliberately taught. It is likely that true creativity develops through opportunity, example, and encouragement.

Stages/Steps in Creative Production

- Wonder (Puzzlement)
- Mental Labor (Mental Struggle)
- Incubation (Gestation)
- Illumination (“Aha!”)
- Verifying (Polishing, Revising)

Important Factors in Creativity

The following factors are considered to be some of the necessary ingredients of creative behavior and production:

- Production and consideration of many alternatives:
  - a)Fluency is the ability to produce a quantity of possibilities, ideas, consequences, or objects
  - b)Flexibility is the ability to use many different approaches on strategies to solve a problem.
- Originality is the ability to produce unusual, unique, or unanticipated responses.
- Elaboration is the ability to expand, develop, and embellish one’s ideas, plans, stories, or products.

In addition to the above factors, Torrance (1979) has isolated other factors of human behavior which contribute to creative production. These are termed creative strengths. Identified creative strengths are as follows:

- Highlighting the essence
- Keeping open
- Awareness of emotions
- Putting one’s ideas in context
- Combining and synthesizing
- Visualizing — richly and colorfully
- Fantasizing
- Richness of imagery
- Unusual visual perspective
- Internal visual perspective
- Breakthrough — extend the boundaries
- Humor
- Decentricism — glimpsing infinity
- Unknown traits?

These creative strengths are elaborated upon in *The Search for Satori and Creativity* by Torrance (1979).

The Torrance Tests of Creative Thinking (1984) are the most widely used tests to measure creativity in the world today. They have been translated into 30 different languages.

The ability to make the creative response is extremely significant for an individual to function effectively in rapidly changing circumstances. The recognition and nurturance of creativity in school is of paramount importance.

> *You need courage to be creative. Just as soon as you have a new idea, you are in a minority of one. And being a minority of one is uncomfortable — it takes courage!*
>
> ***Torrance, 1971***

The potential relationship of this teacher area to the Alberta curriculum at elementary and secondary levels is depicted in the wheel graph below. The subject areas identified may provide some content to be used in teaching the important tool skills. However, non-curricular content or areas may also be used for gifted and talented students.

Teaching Area Number Two Creativity

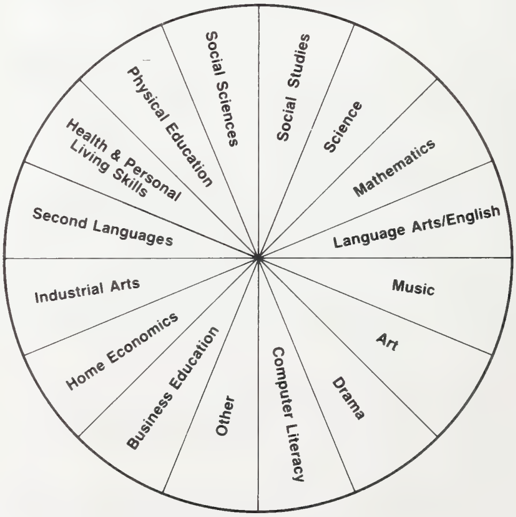


Table 16

Key Teaching Area: Number Two

Creativity

Suggested Level(s) of School System

ECS	1	2	3	4	5	6	7	8	9	10	11	12
●	●	●	●	●	●	●	●	●	●	●	●	●

Elementary **Junior High** **Senior High**

Student Tool Skills

- Fluency
- Flexibility
- Originality
- Elaboration
- Brainstorming
- Visual perspective/imagery
- Fantasy
- Humor
- Imagination
- Association
- Comparison/analogies
- Risk taking
- Creative problem solving
  - "mess" finding
  - fact finding
  - problem finding
  - idea finding
  - solution finding
  - acceptance finding
- Modification techniques
  - adapt
  - magnify
  - minify
  - substitute
  - multiple use
  - rearrange
  - combine
  - reverse
- Inventive thinking
  - reversing
  - designing
  - redesigning
  - finding new uses
  - improving
  - inventing
- Synectics
- Lateral thinking
- Futuristics

Possible Student Products

- maze
- mind games
- drama
- puppetry
- invention
- new strategy
- creative story/poem/drama
- collage
- game for classroom or gym use
- cartoon
- media presentation
- poster
- bulletin display
- inventions
- conceptual "webs"

Teaching Methods

1. Group Study
2. Independent Study
3. Group Methods
   - Olympics of the Mind
   - Future Problem Solving Program

Teaching Area Number Three

Critical Thinking

The term critical thinking includes simultaneous use of many different types of thinking. Critical thinking is not a negative process but, rather, it refers to a person who

- is open-minded about new ideas
- does not argue about something when he knows little or nothing about it
- knows when he needs to gather more information about something
- can distinguish between fact and fiction
- understands that people may have different ideas about the meaning of words
- attempts to avoid common errors in his own reasoning
- questions those things which are not clear to him
- attempts to separate emotional thinking from logical thinking
- attempts to increase his vocabulary to help understand others and to communicate his ideas to other people in a clear manner.

Ennis (1962) indicates 12 aspects of critical thinking:

- Grasping the meaning of a statement
- Judging whether there is ambiguity in a line of reasoning
- Judging whether certain statements contradict each other
- Judging whether a conclusion follows necessarily
- Judging whether a statement is specific enough
- Judging whether a statement is actually the application of a certain principle
- Judging whether an observation statement is reliable
- Judging whether an inductive conclusion is warranted
- Judging whether the problem has been identified
- Judging whether something is an assumption
- Judging whether a definition is adequate
- Judging whether a statement made by an alleged authority is acceptable.

Critical thinking can be cultivated and nurtured through practice. This process could be developed for use in conjunction with decision-making skills. The levels of Bloom's taxonomy of educational objectives discussed on pages 4-24 and 4-25 relates to the development of analytical and critical thinking.

The potential relationship of this teacher area to the Alberta curriculum at elementary and secondary levels is depicted in the wheel graph below. The subject areas identified may provide some content to be used in teaching the important tool skills. However, non-curricular content or areas may also be used for gifted and talented students.

Teaching Area Number Three Critical Thinking

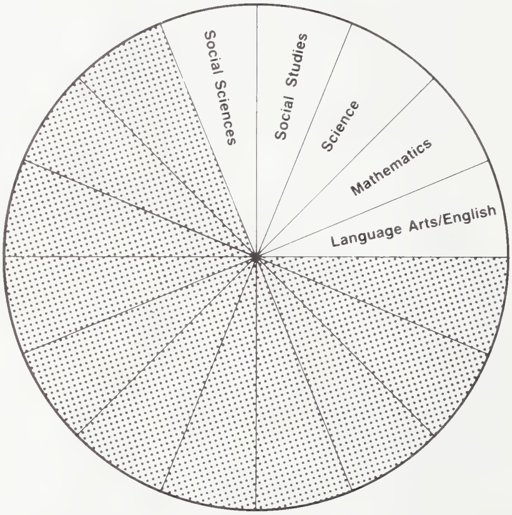


Table 17

Key Teaching Area: Number Three

Critical Thinking

Suggested Level(s) of School System

ECS	1	2	3	4	5	6	7	8	9	10	11	12
		●	●	●	●	●	●	●	●	●	●	●

Elementary **Junior High** **Senior High**

Student Tool Skills

- Ability to apply critical thinking at various stages of problem solving or research
    - interpreting facts
    - testing assumptions
    - supporting with evidence
    - noting ambiguity
    - differentiating fact from fiction
    - predicting outcomes
    - checking reliability - evaluation
    - checking credibility
    - relating conclusions
    - judging with criteria after examination of situation
    - extrapolating
    - sequencing
    - inductive/deductive reasoning
    - probability

Possible Student Products

- flow chart
- graph
- log
- survey
- summary
- classification chart
- computer program
- analogies
- syllogisms
- study of propaganda
- observation
- interview

Teaching Methods

1. Independent Study Project
2. Group Study
3. Philosophy Course

Teaching Area Number Four

Communication

Communication is the essence of human interaction. Effective communication involves word fluency, expressional fluency, and associational fluency.

Word fluency is the ability to use words to give concise meaning. Expressional fluency is the ability to say what one means. This involves non-verbal forms of communication. Associational fluency is the ability to understand the essence of an idea by using comparisons, analogies, and similes.

An increased ability to communicate will lead to more depth and understanding in human interactions. Communication, whether it be oral, visual, or written enables the gifted and talented student to prepare for and participate in "real life."

The potential relationship of this teacher area to the Alberta curriculum at elementary and secondary levels is depicted in the wheel graph below. The subject areas identified may provide some content to be used in teaching the important tool skills. However, non-curricular content or areas may also be used for gifted and talented students.

Teaching Area Number Four
Communication

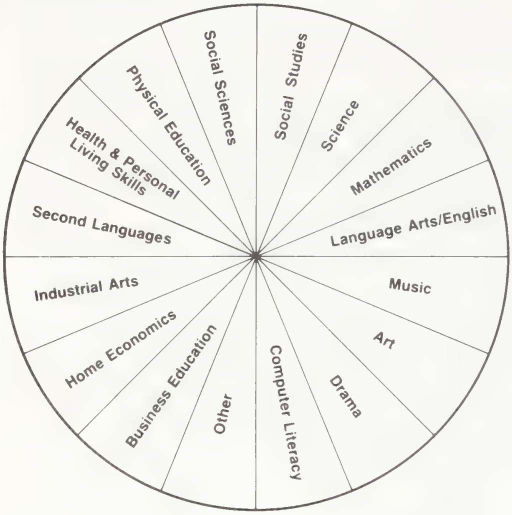


Table 18

Key Teaching Area: Number Four

Communication

Suggested Level(s) of School System

ECS	1	2	3	4	5	6	7	8	9	10	11	12
	●	●	●	●	●	●	●	●	●	●	●	●
	Elementary						Junior High			Senior High		

Student Tool Skills	Possible Student Products
• Ability to receive and send information VISUAL • listen • read • view • sense • use of camera • procedures to create a film, filmstrip • knowledge of logo in computer language ORAL • negotiation skills • vocal delivery • appropriate gestures, eye movements, facial expression, and body movement • use of appropriate words, quotations, personal experiences, examples, and relevant information	• film • filmstrip • video tapes • transparencies • photographs • logo • art display • graphs • panel discussion • introduction of speaker • advertisement • dramatic readings • drama/skit • debate • song • short story

Student Tool Skills	**Possible Student Products**

WRITTEN
• planning a document
  • subject
  • thesis
  • purpose
  • title
• outline
• tone
• audience
• choosing appropriate and imaginative words
• developing paragraphs with unity, coherence, and emphasis
• developing "technique"
  • metaphors
  • comparisons
  • hyperbole
  • personal experiences
• writing powerful introductions and conclusions
• practicing the four basic forms of writing
  • exposition
  • argumentation
  • description
  • narration
	• novel
	• book review
	• research paper
	• newspaper article
	• telegram
	• bulletin board display
	• radio/TV show
	• dance
	• poster
	• story telling
	• computer programming

Teaching Methods

1. Group Project
2. Individual Project
3. Speech and Debate Seminars

Teaching Area Number Five

Forecasting/Planning

The ability to forecast is developmental. Forecasting events in the next instant or in the distant future requires the development of the following skills: conceptual foresight, penetration, and social awareness. Any prediction of future events calls upon forecasting talent. The student must be able to

- evaluate cause and effect,
- consider what needs to be done,
- anticipate consequences.

Conceptual foresight involves the use of current knowledge to predict a future event. Penetration involves the matching of current knowledge and changing environmental conditions. Social awareness involves the effect actions will have on others in the future. Sensitivity to others and social responsibility are important factors to consider.

Planning

Planning ability is also developmental in nature. Effective planning involves the ability to elaborate; a sensitivity to problems; and the organization of time, materials, and manpower. Planning involves many steps.

The potential relationship of this teacher area to the Alberta curriculum at elementary and secondary levels is depicted in the wheel graph. The subject areas identified may provide some content to be used in teaching the important tool skills. However, non-curricular content or areas may also be used for gifted and talented students.

Teaching Area Number Five
Forecasting and Planning

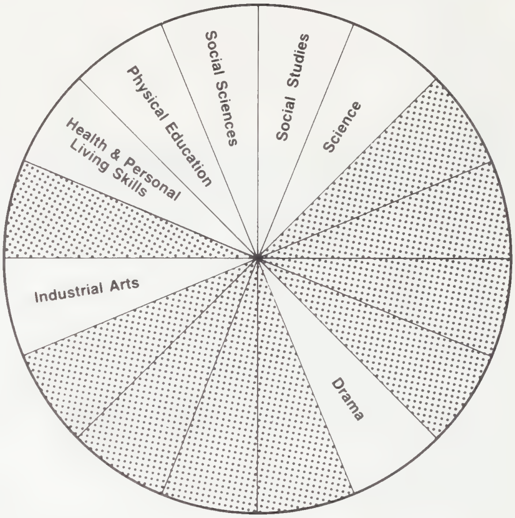


Table 19

Key Teaching Area: Number Five

Forecasting/Planning

Suggested Level(s) of School System

ECS	1	2	3	4	5	6	7	8	9	10	11	12
			●	●	●	●	●	●	●	●	●	●

Elementary **Junior High** **Senior High**

Student Tool Skills

FORECASTING
- consider all the possible causes and results of a given situation
- examine the quality of each of the causes and/or effects related to the situation
- choose the best alternative
- support your choice with good reasons

PLANNING
- state goals
- list the materials necessary to carry out the plan
- organize materials, time, resources
- consider possible obstacles

Possible Student Products

- future network
- scientific experiment
- scenario writing
- current affairs reporting and forecasting
- media presentation
- plan for field trip, class party, fair, concert, sports play-off, field day
- drama production
- discussion
  - results of overpopulation
  - effects of overeating and not getting enough exercise
  - effects of poor nutrition
- plan a city/home/vehicle
- time management

Teaching Methods

1. Group Study
2. Independent Study
3. Class Enrichment Project
4. Scenario Writing Bowls

Teaching Area Number Six

Decision-Making

Decisions, decisions, decisions! Many decisions are such an integral part of a gifted student's day-to-day life that they are seldom noticed. Other decisions require a great deal of deliberation.

Good decision-making calls for
- knowledge of one's values,
- awareness and concern for other people related to the situation,
- courage to take risks,
- knowledge of the situation,
- analysis skills,
- synthesis and evaluation skills to select from generated options.

The quality of life may be dependent upon the types of decisions made daily. Gifted and talented students will be able to deal more effectively with problems and situations they will face in the future if decision-making skills are learned and practised daily.

The potential relationship of this teacher area to the Alberta curriculum at elementary and secondary levels is depicted in the wheel graph on the next page. The subject areas identified may provide some content to be used in teaching the important tool skills. However, non-curricular content or areas may also be used for gifted and talented students.

Teaching Area Number Six
Decision-Making

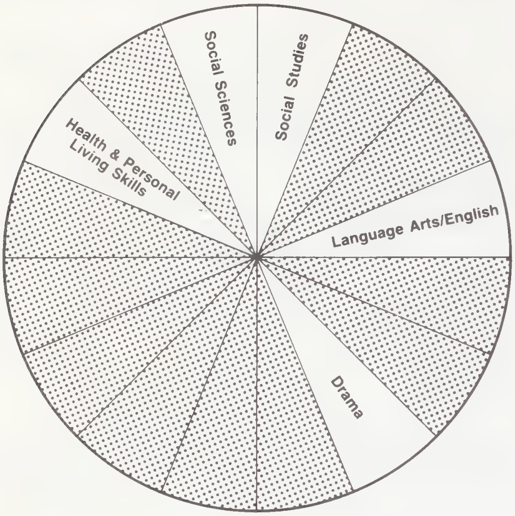


Table 20

Key Teaching Area: Number Six

Decision-Making

Suggested Level(s) of School System

ECS	1	2	3	4	5	6	7	8	9	10	11	12
	●	●	●	●	●	●	●	●	●	●	●	●

Elementary **Junior High** **Senior High**

Student Tool Skills

- Stating the desired goals
- Stating the obstacles to realizing the goals and conditions
- Identifying the alternatives available
- Examining alternatives in terms of resources, cost, constraints, and time
- Ranking alternatives in terms of probable consequences
- Choosing the best alternative
- Evaluating actions resulting from the decision

Possible Student Products

- story character study
- everyday encounters evaluation chart
- discussions of topics
  - moral/value decisions based on Kohlberg's levels of moral development
  - time management
  - shoplifting
  - pollution
  - energy
- election simulation
- committee involvement
- small business simulation
- career investigation

Teaching Methods

1. Everyday Classroom Encounters
2. Group Project Using Planned Strategies
   i.e., products

Teaching Area Number Seven

Computer Skills

The knowledge and use of computer languages and skills have become increasingly important in our society. Gifted students should acquire a working knowledge of computer skills and be able to use this knowledge at the synthesis and evaluation levels.

The versatility of this technology spans all content or subject areas and encourages the development of the higher cognitive skills when creatively nurtured.

Kozak (1985) indicated that the potential benefit of computers to gifted and talented students depends on a ''hierarchy of computer usage.'' It ranges from drill and practice, to accessing phenomena outside the students' realm of imagination, to problem solving skills through programming. The highest level of computer usage offers skill development in higher order processes such as analysis, synthesis, and evaluation of real-life situations. As the students gain greater control over the computer and hence over their own learning, the maximum benefits to intellectual development are realized and the students are that much closer to becoming autonomous learners.

Suggested Hierarchy of Computer Usage for Gifted and Talented Students

1. Drill and Practice Level

This level is useful for reinforcement of basic concepts and skills in curriculum areas. Content is prescribed and the students' involvement is controlled by the computer program. The users have a limited selection of pace and level of difficulty.

2. Tutorial Level

Tutorial programs provide exploration of new content areas and access to advanced instruction. This affords the students the opportunity to select specific content related to their special needs and interests.

3. Application Level

The computer is used to assist in completing users' tasks such as word processing, data management, and information retrieval through networking. Students can manipulate available software and utilize programs to meet their specific needs. Control of the computer, while still heavily dependent on software, is shifted to the users.

4. Simulation Level

Simulations offer students increased autonomy and move them toward the higher levels of thinking skills while incorporating problem-solving strategies, prediction, logic, and evaluation. Students can experience situations that simulate the real world but, without computers, may not otherwise be accessible within the classroom.

5. Programming Level

Programming affords the users the opportunity to pursue the full capabilities of the computer and, at the same time, provides the opportunity for the greatest intellectual development.

While gifted and talented students may operate at each of the levels, their degree of sophistication will vary. There is an increased likelihood that students who exhibit greater interest and aptitude will spend more of their time at the highest level. It is at this level of computer involvement that the computer is controlled by the users and serves as a significant adjunct to learning. Here is where one sees the greatest need for differentiation as the gifted students with a special aptitude for computer and computer-related activity emerge. These are the computer talented students. They perceive the computer as a part or extension of themselves and as a result, find it easy to translate their thoughts to the logic of computer language. Furthermore, because of their advanced level of thinking skills and their ability to visualize a problem in a holistic way, the computer talented students, with the use of the computer, become proficient problem solvers.

Millar and MacLeod (1985) conducted a comparative study of the effectiveness of utilizing microcomputers for the development of computer awareness and literacy, and implementation of curriculum courseware with gifted and average elementary and junior high school students. The findings are instructive to educators contemplating the use of microcomputers with gifted and talented students.

Other useful articles related to computers and gifted students are those written by Doorly (1980) and Katz (1983).

What does the future hold for the application of computers for gifted and talented students? Naisbitt (1982) maintained that success in the future will require that a person become trilingual (English, French, and Computer). Dover (1983) describes an unusual future computer application for the gifted and talented. The application involves the development of a tiny computer auxiliary brain which when implanted amplifies intelligence exponentially. Who knows the limits of the computer?!

The potential relationship of this teacher area to the Alberta curriculum at elementary and secondary levels is depicted in the wheel graph. The subject areas identified may provide some content to be used in teaching the important tool skills. However, non-curricular content or areas may also be used for gifted and talented students.

Teaching Area Number Seven Computer

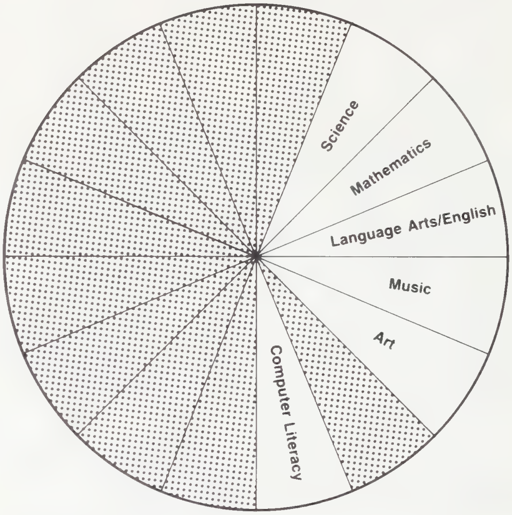


Table 21

Key Teaching Area: Number Seven

Computer Skills

Suggested Level(s) of School System

ECS	1	2	3	4	5	6	7	8	9	10	11	12
	●	●	●	●	●	●	●	●	●	●	●	●

Elementary **Junior High** **Senior High**

Student Tool Skills	Possible Student Products

• Keyboarding knowledge
• Word processing
  • keyboarding
  • information retrieval
  • manipulation of information
• Problem solving - Logo
• Acquiring computer languages - structured skills
• Developing logical skills through game theory
• Programming
  • Pascal
  • Cobol
  • Logo
  • Fortran
• Graphics
  • Lo resolution
  • Hi resolution
  • Hardware/Software utilization
  • (Graphics Tablet)
	• art forms
	• design
	• musical
	• composition
	• problem writing and solving
	• peer teaching
	• budget
	• survey results
	• quality student reports
	• color analysis and design
	• data input
	• significant learning attributes (concentration, independence, individuality, responsibility)
	• flow chart

Teaching Methods

1. Group Skill
2. Independent Project
3. Class Enrichment

Teaching Area Number Eight

Leadership and Organization

Community businesses are looking for individuals who demonstrate excellence in leadership and organizational skills: i.e., "In Search of Excellence", 1982.

Leadership is the activity of helping others work together meaningfully toward a common goal.

The ability to work effectively in groups as a leader can be learned through effort, study, and practice. Leadership may be both an art and a science.

Skills which may be learned and practised include the following qualities within a group:

- personal behavior,
- communication,
- equality or shared responsibility, and
- organization.

The potential relationship of this teacher area to the Alberta curriculum at elementary and secondary levels is depicted in the wheel graph on the next page. The subject areas identified may provide some content to be used in teaching the important tool skills. However, non-curricular content or areas may also be used for gifted and talented students.

Teaching Area Number Eight
Leadership/Organization

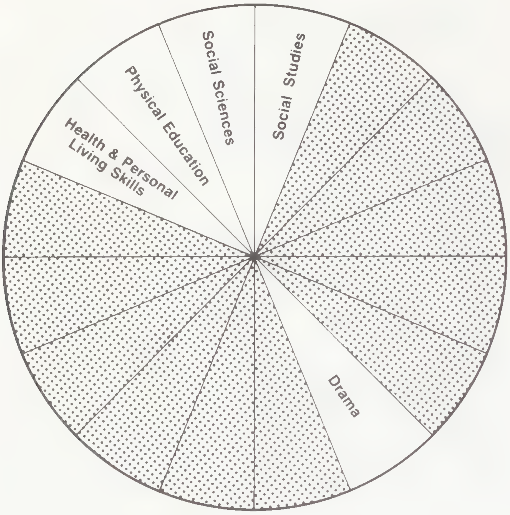


Table 22

Key Teaching Area: Number Eight

Leadership and Organization

Suggested Level(s) of School System

ECS	1	2	3	4	5	6	7	8	9	10	11	12
				●	●	●	●	●	●	●	●	●

Elementary **Junior High** **Senior High**

Student Tool Skills

- Assumes responsibility
- High expectations for self and others
- Exercises critical thinking in decision-making
- Organizes/structures duties to accomplish goals
- Ability to "lead" peers
- Ability to work harmoniously in a team
- Ability to communicate clearly and comfortably with others
- Ability to think expansively and inspire others
- Ability to work for long periods of time with few visible rewards, to take disappointments in stride, and to understand failure as one step toward refinement and long-range success

Possible Student Products

- drama/skit
- mock campaign/election
- student monthly organizational plan
- visit to City Hall for council meeting
- writing an agenda for a meeting
- committee involvement
- simulation of parliamentary procedures
- organized sports day or tournament
- mini United Nations simulation
- small business experience or simulation
- club organization
- leadership recognition day
- study of personalities who demonstrate effective leadership traits

Teaching Methods

1. Group Skills
2. Class Project

Teaching Area Number Nine

Independent Study

The gifted student should be allowed to develop knowledge and skills in self-selected areas in order to provide meaningful experiences at school.

The student carries the responsibility, under the guidance of teachers and/or mentors, to function as an autonomous learner in creating and presenting comprehensive studies to meaningful audiences.

Independent study is a cooperative teacher-student learning process. It is based on a plan that outlines study conditions and expected performance. Activities in which the student collects, organizes, and shares information are part of the plan. The student involved in independent study works within the framework of these learning activities, choosing some himself and/or having others assigned by the teacher.

Some general goals for students can serve as guidelines in developing an independent study program. These goals are that students

- learn how to learn;
- actively seek, as well as gain, knowledge;
- practise making decisions;
- become self-sufficient learners;
- learn something of personal value.

The tool skills considered necessary for the production of quality studies can be taught to students during the primary school years, and applied in meaningful areas during the late elementary and junior high school years. Original research should be the product of independent study at the senior high school level. The needs of an information society would seem to dictate renewed activity in this area.

Samples of an independent study contract, independent study log, and a student's self-evaluation form are found in Appendix I.

The potential relationship of this teacher area to the Alberta curriculum at elementary and secondary levels is depicted in the wheel graph below. The subject areas identified may provide some content to be used in teaching the important tool skills. However, non-curricular content or areas may also be used for gifted and talented students.

Teaching Area Number Nine
Independent Study

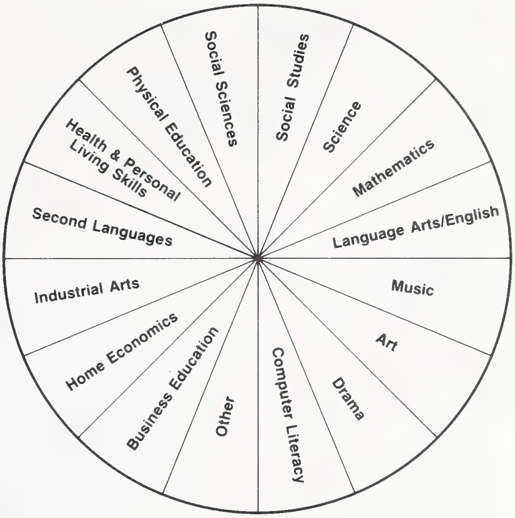


Table 23

Key Teaching Area: Number Nine

Independent Study

Suggested Level(s) of School System

ECS	1	2	3	4	5	6	7	8	9	10	11	12
				●	●	●	●	●	●	●	●	●

Elementary Junior High Senior High

Student Tool Skills

- Inquiry method
- Higher level thinking skills and questioning strategies (Bloom)
- Library/study skills
  - acquiring information: card catalogue, table contents, index, glossary
  - use of bibliography, microfiche, periodicals, encyclopedias, reference materials, audio-visual materials, telephone directory, newspaper
  - note-taking
  - skimming
  - outlining
  - revising
  - proofreading
  - revising
  - interviewing
  - reporting
- Research methods
  - case study
  - historical study
  - correlational study
  - descriptive study
  - developmental study
  - casual/comparative study
  - action research
  - quasi-experimental research
  - true experimental research
- Self-directed learning
- Identifying community resources
  - business and private individuals
  - governmental and social service agencies
  - college and university services and persons
  - clubs and special interest groups
  - senior citizens
  - art and theatre groups
  - galleries, museums, and science centres

Possible Student Products

- scrapbook
- peer teaching
- project presentation
- display
- flow chart
- diagrams
- model
- learning centre
- book
- letter
- log
- questionnaire/survey
- student self-evaluation or project
- demonstration
- fact file
- picture dictionary
- graph/map
- media presentation
- checklists
- time line
- questioning sequence chart
- data gathering
- matrix
- written report
- oral report
- outline
- cartooning

Teaching Methods

1. Independent Study
2. Student Contract
3. Group Project
4. Class Thematic Unit

Selected Curriculum Models

Teachers of gifted and talented students need to be aware of a variety of curriculum models and decide how they might apply the various models to the needs of their students. The models which contribute to program and/or service development are Bloom's ''Taxonomy of Educational Objectives''; Taylor's ''Multiple Talent Teaching Approach''; Renzulli's ''Enrichment Triad''; Betts' ''Autonomous Learner''; and William's ''Cognitive/Affective Behaviors''. These models are not intended to be definitive but represent some of the more popular curriculum models.

The Application of Bloom's "Taxonomy of Educational Objectives"

Bloom's ''Taxonomy of Educational Objectives'' (1956) is used most frequently for the development of higher level thinking. It presents a model for thought processes involved in critical and analytical thinking. Gifted students can be taught to use this model for goal setting and questioning techniques in independent or group studies.

Teachers may find the model extremely useful in developing curriculum or core component activities and questioning strategies to ensure student growth at all levels. Gifted and talented students should utilize the higher order levels in the taxonomy (higher mental processes) when considering curricular materials and other areas of interest.

Summary of Bloom's Taxonomic Levels, Definitions, and Process Verbs

Level of Taxonomy	Definition	Some Process Verbs Related to Taxonomic Level
Knowledge	Remembering specific bits of information	recall define list name label record
Understanding and Application		
Comprehension	Grasping the meaning of specific information	restate describe explain discuss locate
Application	Using learned materials in new situations (rules, methods, concepts, principles, laws and theories)	apply interpret demonstrate employ use translate
Higher Mental Processes		
Analysis	Breaking down materials into component parts to understand structures	experiment debate distinguish analyze inspect compare examine
Synthesis	Putting parts together to form a new whole	design compose plan formulate assemble construct propose create
Evaluation	Judging the value of materials for a stated purpose (selection based on a given set of criteria)	judge evaluate appraise rate assess measure predict estimate

Sample Application of Bloom's Taxonomy of Educational Objectives: Development of Questions

Topic - Grain Farming in Alberta

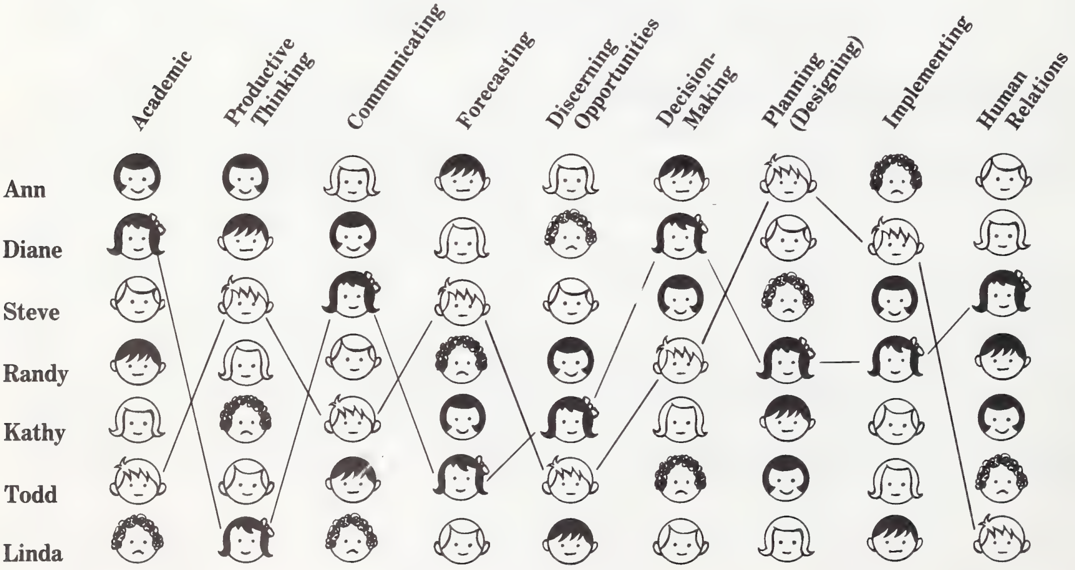
Taxonomic Level	Questions
Knowledge	1. List five kinds of grains grown in the Prairie regions. 2. Name the farm implements used in grain farming.
Understanding and Application	
Comprehension	1. Describe the land preparation before seeding. 2. Explain why fertilizer is beneficial for greater productivity.
Application	1. Interpret a graph to find the most productive wheat growing region in Alberta. 2. Demonstrate the increased productivity of soil that is fertilized.
Higher Mental Processes	
Analysis	1. Experiment to show how different soils retain moisture. 2. Compare the properties of Marquis and Rescue wheat.
Synthesis	1. Propose a method by which alkali will not leach in the soil. 2. Formulate a plan to reduce grain transportation costs.
Evaluation	1. Predict the condition of the soils in 25 years if the leaching is not arrested. 2. Estimate the agricultural population in 25 years.

Taylor's Multiple Talent Teaching Approach

Multiple talent teaching is a pedagogical approach created by Calvin W. Taylor. The Richardson Creativity Award was presented to Dr. Calvin Taylor in 1970 for his "...outstanding contribution toward improving creative and innovative talents or developing or utilizing such talents" (1971). Briefly, Taylor's main thesis is that all children are potentially gifted. He states that present intelligence tests measure only one-tenth of an individual's mind power. In other words, 90 percent of an individual's mind power is largely kept dormant. The multiple talent teaching approach is well documented (Taylor - 1968, 1973, 1974, and 1978; and Maker - 1982). Taylor believes that the entire educational system should be informed so that a variety of talents, namely, creatively, communication, planning, forecasting, decision-making, human relations, and academic abilities, are a focus in all classrooms. It is the teacher's challenge to actualize student potential and be talent developers, not simply knowledge dispensers. To illustrate the significance of teaching for multiple talents, Taylor uses the now well-known "Talent Totem Poles" which show the placement of seven students on nine Talent Totem Poles. It is the teachers' job to discover, "unearth", and cultivate those talents. The Talent Totem Poles show that no one stays at the top nor at the bottom, nor in the middle. Instead, everyone has both strengths and weaknesses all the way across the totem poles. Two manuals for teachers have been developed which contain ideas that foster multiple talent teaching. They are "Opportunities for Creativity and Communications" (1977) and "Igniting Creative Potential" (1971).

Taylor's multi-talent teaching approach has been used effectively to provide differentiated instruction to gifted and talented as well as to heterogeneously grouped students. The basic assumptions underlying this model are that every student has at least one talent or strength and that education should help to develop that area further as well as provide opportunity to strengthen other talent areas. A teacher using this model would try to learn each student's strengths, preferences, and weaknesses and would endeavor to teach and arrange learning accordingly.

The Taylor multi-talent model is a way of trying to teach to all children the full range of human gifts and talents, instead of only teaching the academically inclined. Teaching by this model helps a teacher to be aware of the unique individuality of every student. It also encourages the teacher to foster responsibility by providing many opportunities for decision-making. Students are encouraged to acquire learning, not for its own sake but for the purpose of applying it in and out of school.



Taylor's Talent Totem Poles — 1984 Extended Version.
Copyright © 1984, Calvin W. Taylor.

Renzulli: The Enrichment Triad Model

Renzulli's (1977) enrichment triad model describes three types of enrichment activities that can be used with gifted and talented students in the primary grades through to university.

Type I - General Exploratory Activities

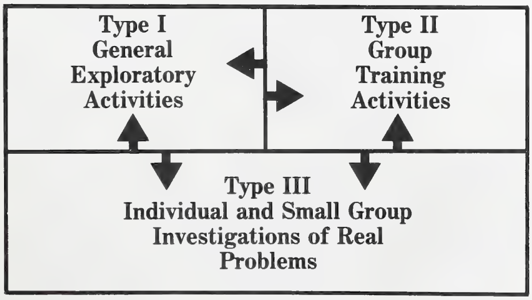
Type I activities incorporate a variety of topics in which children have a sincere interest. Use is made of a variety of reference materials, role playing, and games. In addition, activities such as community visitations and field trips are used to stimulate the students' interests.

Type II - Group Training Activities

Type II activities are designed to develop the student's thinking and feeling processes. Some of these training exercises involve creative and productive thinking skills such as brainstorming, classification, originality, flexibility, fluency, elaboration, and synthesis.

Type III - Investigation of Real Problems

It is expected that the gifted student will identify and investigate real-life problems. In addition to using the methods outlined in Types I and II, the gifted are expected to use appropriate methods of inquiry or research to solve problems. Data is collected using interview and survey techniques, conclusions are derived from results, and recommendations are made. It is extremely important that the student communicate results in a meaningful way.



Types I and II activities, according to Renzulli, are appropriate for all learners. Type III activities are especially relevant for gifted students.

Betts and Knapp: The Autonomous Learner Model

Responsible, self-directed learning is a skill that needs to be cultivated in gifted students since it does not happen naturally. The Autonomous Learner Model for the Gifted and Talented (ECS-12) was developed to meet the diversified needs of gifted and talented students (Betts and Knapp, 1983).

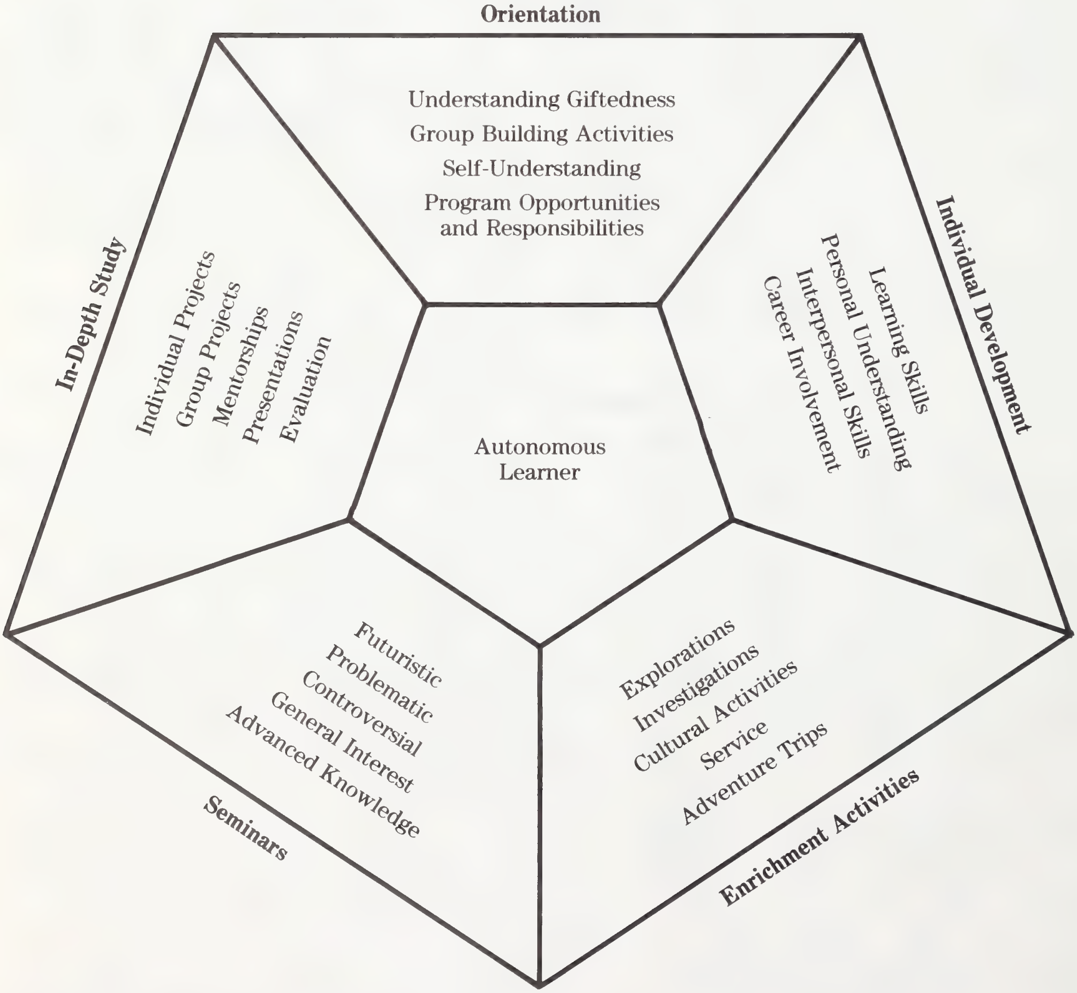
Student motivation through self-selected interest areas is a key to developing good management of individual learning.

The teacher is the facilitator or advisor to the student. He or she serves as a guide to encourage students to go into greater depth with their ideas and the production of "professional type" products. This model is being adopted by some teachers who facilitate the thinking and learning of secondary school students. It appears to be most compatible with older students. However, it has been modified for use at the elementary level.

There are five major dimensions to the model: orientation, individual development, enrichment activities, seminars, and in-depth studies. Briefly, the Orientation Dimensions of the model provide students, teachers, administrators, and parents the opportunity to develop a foundation of information concerning the program. The Individual Development Dimension of the model provides students with the opportunities to develop the cognitive, emotional and social skills, and the concepts and attitudes necessary for life-long learning. The Seminar Dimension of the model is designed to give the students, in small groups of three to five, the opportunity to research a topic, present it as a seminar to the rest of the group and other interested people, and to evaluate it by criteria selected and developed by the students. The Enrichment Activities Dimension of the model was developed to provide the students with opportunities to explore content that is usually not a part of the everyday curriculum. The In-Depth Study Dimension of the model is developed to allow the learner the opportunity to pursue an area of interest through the development of a long-term small group or individual in-depth study.

The diagram, designed by Betts and Knapp (1983), depicts the five areas of the model with the centre representing the autonomous learner. The Autonomous Learner Model for the Gifted and Talented is developed to give the student an opportunity to become an autonomous learner. An autonomous learner, by definition, is ''one who solves problems or develops new ideas through a combination of divergent and convergent thinking and functions with minimal external guidance in selected areas of endeavor'' (Betts and Knapp, 1983).

The Autonomous Learner Model

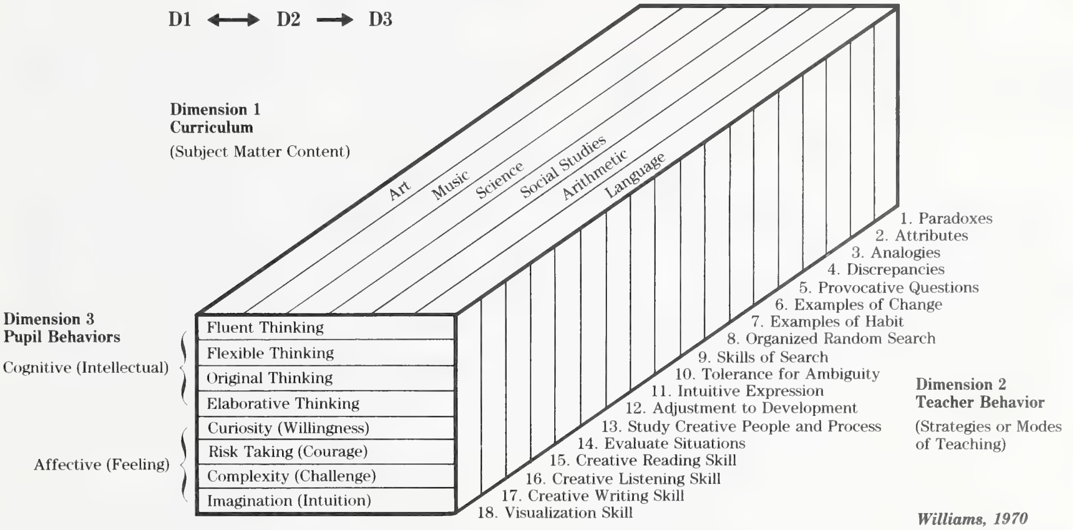


Williams - Implementation Model of Cognitive/Affective Behaviors

Dr. Frank Williams emphasized the importance of developing creative thinking skills in all the subject areas. His eighteen teaching strategies may assist teachers in developing the creative potential of their students.

Dimension 1 of the William's Model deals with curricular content prescribed by Alberta Education. Dimension 2 deals with significant teaching strategies. Dimension 3 deals with cognitive and affective student behaviors.

Application of the William's Model will allow the teacher to provide opportunities for whole class exploration, as well as freedom for individuals to pursue their own interests in-depth.



Williams, 1970

Learning Styles: The "X" Factor

A number of learning style models have had a considerable impact upon the education of gifted and talented students. Teachers of gifted and talented students have adapted instruction and individual programs to meet the needs of the gifted based upon the research into styles of learning and thinking.

The research on specialization of cerebral functions of right and left hemispheres of the brain has captured the imagination of teachers of the gifted and talented. Although controversial, hemispheric preference has exciting potential in education for the gifted and talented. McCarthy (1980) and Rubenzer (1982) provide interesting brain research for teachers to consider.

Other styles of learning and thinking that teachers might explore are the works of Torrance et al. (1984), Dunn and Dunn (1975), Gregorc (1982ab), and Renzulli and Smith (1978). These models are instrumented by inventories that are brief and easy to administer. The teaching implications of the research on learning styles has not yet been fully explored in education.

Guidance and Counselling Services

Provision of counselling services to gifted and talented students is a new thrust and one that is deemed to be of vital importance to the psychological well-being of bright students. Colangelo (1979) cites a number of school counselling functions that are essential in providing assistance to students involved in accelerated and enriched programs/services for the gifted and talented. These functions are listed as follows:

Provide suport for the frustrations of persisting at a single task	Assist parents and teachers to understand the emotional investment by these students in what they do	Provide emotional support to students who may be viewed as wasting time or being silly in their pursuits	Provide support for learning advanced material
Use client-centered approach to problem solving	Provide a sensitive human relationship with these students	Help students understand and appreciate their acute sensitivity	Help students set goals
Educate others to understand that students have limits and are prone to being "overdriven", especially by parents and teachers	Use behaviorally-oriented counselling	Help students develop socially; they may be more mature intellectually and need improved balance in that regard	Help students build realistic self-concepts as they may be overly harsh on themselves if they "fail" in any area

Those gifted and talented students who are disadvantaged by a physical handicap, culturally, or socially deprived, require the special assistance of counsellors.

An essential component of any gifted program is to serve the affective needs of gifted students. One large Alberta school jurisdiction has hired a school counsellor to work specifically with the gifted and talented. A job description for this itinerant school counsellor follows.

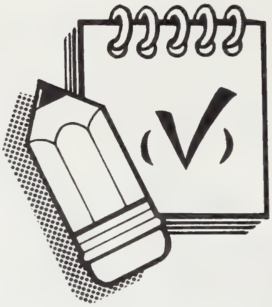
- Individual short-term counselling for the purpose of assessing students' social and emotional needs and the impact of those needs on intellectual development.
- Consultative functions involving meetings with significant adults concerned with the child: e.g., principal, classroom teacher(s), parents, school psychologist, counsellor (if applicable):
  a. To gain further information regarding students' past and present level of intellectual, social, and emotional functioning in both home and school environments.
  b. To discuss and provide information related to gifted students' intellectual potential and any social and/or emotional deficits which may interfere with the realization of that potential.
  c. To discuss individualized, realistic goals and expectations designed to maximize not only the intellectual potential of a particular gifted student, but also to provide for adequate emotional and social development. Group counselling for small groups (4-8 students) of gifted children from a variety of grade levels having similar social and emotional needs and concerns, such as underachievement, peer relationship problems, difficulties with interpersonal situations, and/or low self-esteem. One of the primary objectives of group counselling for gifted students is to provide information and experiential

activities designed to enhance the students' understanding of giftedness and possible personal and academic ramifications of that giftedness. In particular, open and appropriate expression of feelings is to be encouraged, facilitated, and practised about being gifted and about some of the expectations (from school, home, and self) which may occur when identification takes place.

- Provision of assistance to junior high and senior high school guidance counsellors with regard to strategies and techniques deemed particularly appropriate for dealing with the specific concerns and needs of gifted junior high and senior high school students.
- Liaison with the guidance counselling department.
- Design and delivery of workshops and information sessions for other professionals dealing with gifted students with regard to topics such as the following:
  - Definition of giftedness;
  - Identification of the gifted - procedures and implications;
  - Counselling needs of gifted students;
  - CoRT thinking as a counselling tool for dealing with gifted students;
  - Organization and management of counselling groups for gifted children;
  - Assertion training for gifted children.
- Preparation and/or adaptation of materials, games, and/or activities for use in the counselling of gifted children at the elementary levels.

One of the most significant books on counselling the gifted and talented was edited by Colangelo and Zaffran (1979). Another useful reference is Guidance and Counselling of Gifted Children by Crabbe (1980).

Key Elements — Chapter Four



1. Literature on differentiated curriculum and models for elementary/junior high/senior high levels.
2. Relating teaching areas to student strengths/interests.
3. Nine key teaching areas.
4. Selecting curriculum models, teaching strategies, and resources using established criteria.
5. Relating program and/or service to objectives of school philosophy and program goals.
6. Using the services of a catalyst/coordinator who ensures program planning for gifted students in the school.
7. Obtaining the services of community resource people to provide ideas and/or mentorship experiences for students.
8. Implementing the teaching area(s).
9. Scheduling time and providing resources for teachers of the gifted to work together to develop curriculum and to plan cooperatively with regular classroom teachers.
10. Conducting awareness sessions for total staffs on the key teaching areas.
11. Providing awareness of curricular emphasis to parents.
12. Evaluating key teaching areas and student products as they relate to program objectives.
13. Understanding learning styles.
14. Providing guidance and counselling services to gifted and talented students on an ongoing basis.

Chapter V

Evaluation: Keys to Improvement

Chapter Five:
Evaluation: Keys to Improvement

"That which is not inspected regularly decays."

Fraser

Overview

This chapter deals with ways to evaluate program design and student progress. Principles and criteria are suggested for evaluation. The purposes of assessment and evaluation are stated (formative and summative). An evaluation process and design are presented as models. Steps on how to prepare a formative program evaluation report are included. Finally, the use of subjective instruments including teacher rating scales is discussed.

Introduction

The evaluation plan reveals to what extent the goals and objectives of the program/services for gifted and talented students are being accomplished. It focuses on two major areas: student progress as indicated in the student objectives, and program evaluation as indicated in the program/services objectives. There are two types of evaluation: namely, formative and summative. Evaluation procedures are comprehensive and ongoing and are developed by persons involved in program planning and implementation.

Since it will not be necessary to evaluate all aspects of the program each year, part of evaluation planning includes selecting which features will be evaluated. Because the relationship of gifted and talented programs to the total education program of the school or district is so important, the attitudes and ideas of parents and community members, as well as students and school personnel, should be included as part of the evaluation procedures.

Evaluation results provide the basis for recommendations for future program/services directions. Modifications in the program design inevitably will be needed and should not be viewed as indications of failure but, rather, as necessary to assure program strength and growth. Evaluation information should be available to persons involved in developing and implementing the program, as well as school board members, parents, and other interested individuals in the community.

Table 24
Suggested Principles and Criteria for Evaluation

Principles	Criteria
Basic Principle #1: Evaluation of the gifted/talented program/services is both continuous and comprehensive.	1.1 Evaluation procedures are considered in the initial planning stages of the program/services. 1.2 Participants in the development and implementation of the program/services are involved in ongoing evaluation process. 1.3 The evaluation design provides a continuous flow of information on selected facets of the program and measures their effectiveness in relation to student growth. 1.4 All elements of the program are evaluated periodically. 1.5 Evaluation data are disseminated to those persons involved in program development and implementation (teachers, counsellors, administrators, students, local board, parents, and community).
Basic Principle #2: Evaluation of the gifted/talented determines the effectiveness of program administration.	2.1 Program (process) objectives, with activities, are clearly stated and address each of the following components of the program: • identification, • program organization, • curriculum, • staff development, • parental/community involvement, and • evaluation. 2.2 Program activities are formulated for each objective. 2.3 Evaluation activities are appropriate for measuring the program (process) objectives. 2.4 Documentation that determines the accomplishment of the program (process, objectives) includes, but is not limited to, the following: • dates of staff orientation meetings, number and names of personnel attending, topics covered, interests, and other records/minutes/agenda of orientation meetings; • records of staff development sessions and evaluation results; • effectiveness of materials/supplies/equipment purchased; • lists of key program activities with dates of accomplishment; • measurement of changes in perception of program/services by staff, students, parents, and community. 2.5 Conclusions addressing the strengths and weaknesses of program objectives are analyzed from collected data and disseminated as appropriate. 2.6 Recommendations for improvement of the program based on evaluation results are formulated and disseminated as appropriate.
Basic Principle #3: Evaluation of the gifted/talented program measures student progress and performance.	3.1 Student goals are clearly stated prior to program implementation. 3.2 Student objectives and activities are formulated to meet student goals. 3.3 Evaluation activities are appropriate for measuring student outcomes. 3.4 Self-evaluation by students is encouraged and used in determining student progress. 3.5 Documentation that measures outcomes may include the following: • student and parental interviews or questionnaires, • teacher observations, • peer evaluations, • observations of student behavior, • attitude checklists, • sociograms, • student products, • community interviews or questionnaires, • comments or statements from mentors or experts in the area of student talent, • criterion-referenced tests, • standardized tests. 3.6 Conclusions addressing both strengths and weaknesses are drawn from collected data. 3.7 Recommendations on student placement, progress, and performance are formulated and disseminated as appropriate.

Areas of Focus: Program Evaluation and Student Progress

Any viable program/services for gifted and talented students must demonstrate its effectiveness in two main areas: program evaluation and student progress.

1. Program Evaluation

There is a need to evaluate program success in order to determine ways to improve management, staffing, communications, and in-service, etc. This evaluation should involve the teacher of the gifted, the students, parents of gifted, and administration — the total staff in the school should have input.

2. Student Progress

Student progress can only be measured if the objectives can be measured. It is extremely valuable to find appropriate tools to pre- and post-test.

The term program evaluation implies that this activity need be carried on only when a program is in the building or formative stage. While this is no doubt true, it must be pointed out that a program for the gifted is always at the formative stage. It is never developed to the point where the teachers can say, "This is it, for many years to come."

Purposes of Assessment and Evaluation

Information derived from continuous assessment and evaluation can serve two purposes:

- as a formative evaluation to facilitate modifications to the pupil's special education program;
- as a summative evaluation that takes place at the conclusion of a unit of study or a period of time and forms the basis for reporting.

More specifically, formative evaluation is based on data which is collected while the program progresses. It allows teachers to identify specific features and problems, then plan appropriate adaptations or corrections before they interfere with the overall effectiveness of the program. Students should be allowed to participate as it allows them to be an integral part of the evaluation process. Summative evaluation generally analyzes such factors as pre- and post-test scores and program scores or grades. It usually occurs after the completion of a program when data is collected and analyzed.

Evaluation efforts must relate to the content: that is, studies by gifted and talented students. The use of standardized achievement tests are generally involved. Standardized achievement tests address the objectives of the regular curriculum rather than program/services for the gifted. Callahan (1983) states that validity problems of standardized tests relate to the unusual heterogeneity that exists among gifted and talented students.

Renzulli (1983) states that "it becomes more crucial that we begin to live with more subjectivity in an evaluation effort."

Program developers must define the goals of the program/services as behaviorally as possible. Then every effort must be made directly to match the behavioral goals with instruments selected or constructed. These instruments should purport to measure the goal established for the gifted and talented students. For example, if a goal is to develop the creative thinking skills of fluency, flexibility, originality, and elaboration, then a test designed to measure those skills is appropriate and desirable. Many educators such as Weiss and Gallagher (1983), Callahan (1983), and Renzulli (1975) indicate that more formative evaluation is needed.

Some commonly prepared tests are available that purport to measure higher order thinking skills. These are listed in Appendix E. The reader is cautioned that the test selected should measure what has been taught and/or practised by gifted and talented students. It is important that the tests have content validity; that is, the task to be performed by students must represent what has been taught which, in turn, must reflect the program's goals. In addition, there will always be a modicum of error and imprecision when using standardized measures.

In addition to formal tests and measures that are available, informal measures may be used. Some of the procedures that might be considered include questionnaires for the teachers, students, parents, advisors, and mentors. Interviews might provide valuable information, as might written statements by people involved in the program. Sometimes products and class presentations can be rated by peers to produce an indication of their usefulness.

Evaluation: When and By Whom

When?

The question if frequently asked, "When should planning of the program evaluation begin?" The answer is, "At the same time that the program is being developed." This is another way of saying that when a program is being built, thought should be given to how the evaluation is to be carried out. For example, one of the instructional procedures might be the use of field trips. If this technique is employed, a procedure should be used to evaluate it. A questionnaire might help, along with a follow-up quiz to see what the students learned, and it might be possible to make comparisons with a class that merely read about what the field trip class observed first-hand.

Evaluation of student progress and performance should be planned when the program is being mapped out. Behavioral goals and objectives in particular, should be made up with a view to how they can be measured.

By Whom?

Large scale program administration evaluation could be carried out by an evaluation team. The ideal situation is for the team to be an outside group of consultants. The team would get input from groups such as administrators, teachers, parents, and students. Most school systems will, however, set up a team made up of their own people. The team should have at least one member who has some knowledge and skills in the area of evaluation, and other members who have recognized expertise in the field of program/services for the gifted. It must be stated clearly that it is too much to expect the teachers to conduct an evaluation of the program on a school or system-wide basis. Evaluation of student progress and performance, on the other hand, is largely the responsibility of the teacher. Assistance could be provided to the teacher by way of pooling ideas and consulting experts in the field of gifted education.

An Evaluation Process

A good process has been developed for evaluation by Renzulli and Smith (1975) called the Key Features Evaluation System. Districts would be well-advised to become familiar with the four-step procedure.

1. Front-End Analysis.

The gathering of data to identify key features of the program to be evaluated.

2. Synthesis Using Key Features Matrix.

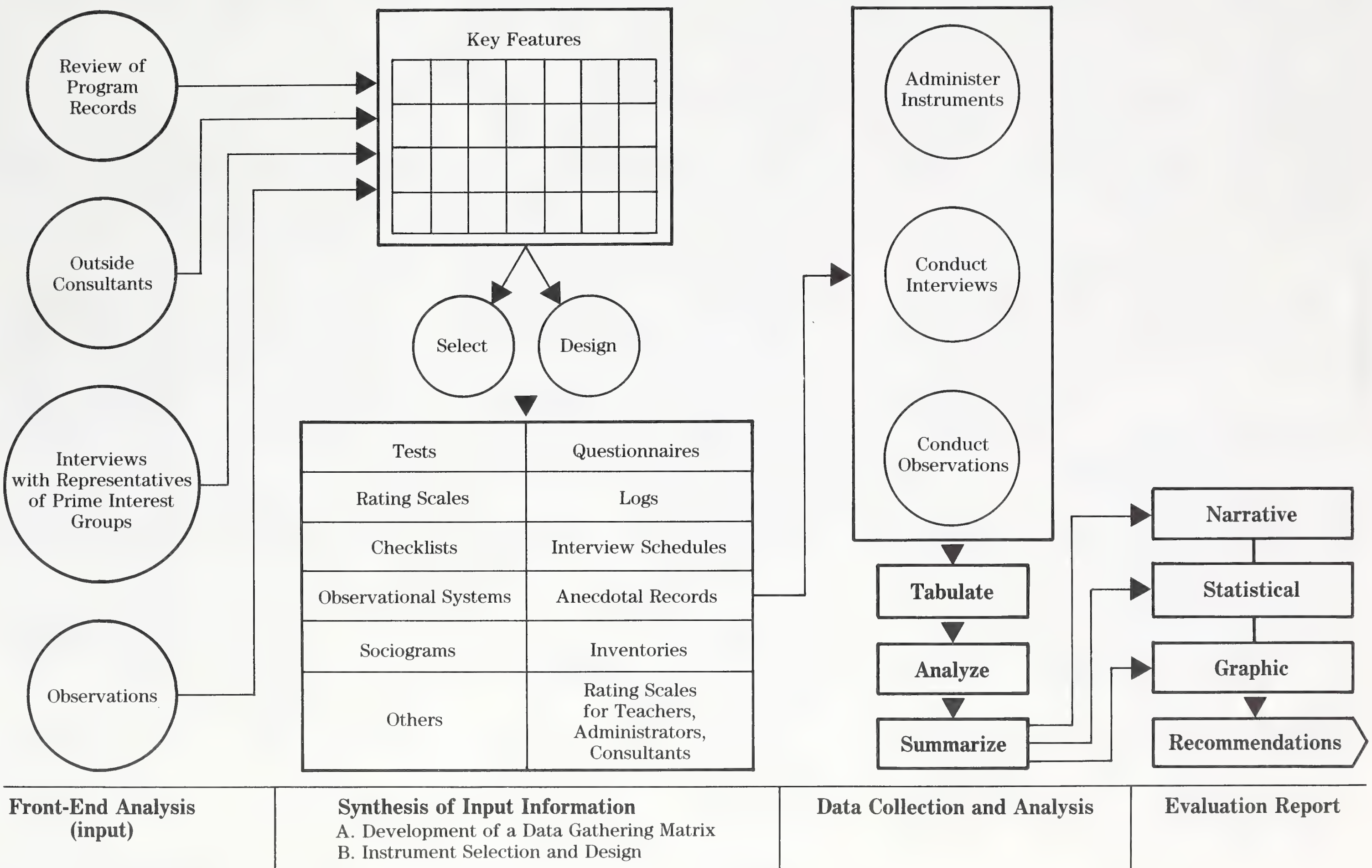
The matrix is composed of the key features: sources of data and the instruments used to obtain data.

3. Data Collection, Tabulation, Analysis, and Summary.

4. Writing and Submitting Report.

The report consists of three parts: narrative, statistical, and graphic.

School Jurisdiction Flow Chart for Evaluation: Gifted and Talented Program/Services*



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* *Adapted from Renzulli (1975).*

Table 25
Suggested Matrix of Key Features and Sources of Data for Evaluation

	Attitudes Toward Program	**Staff Development**	**Identification Procedures**	**Differentiated Curriculum**	**Student Progress**
Students	Questionnaires Interviews	Suggestions	Input and Observations	Suggestions	Pre- and Post-Tests Logs
Teachers with a Specialized Role with Gifted and Talented	Interviews	Rating Scale	Questionnaires Interviews	Logs Lesson Plans	Observations Anecdotal Records Progress Reports Recommendations
Regular Classroom Teachers	Questionnaires Interviews	Rating Scale	Interviews Checklists	Lesson Plans	Rating Scales Observations Conferences
Psychologists and Other Consultants	Interviews	Interviews Rating Scale	Recommendations	Observations Rating Scale Lists of Activities	Recommendations
Principals and Coordinators	Interviews	Needs Assessment Data Rating Scale Interviews Follow-up Questionnaire	Interviews Follow-up Questionnaire	Observations Follow-up Questionnaire and Records	Record student's progress through system

Evaluation Design: One Suggestion for Program Impact

Evaluation of gifted and talented students does not lend itself to traditional research design: using an experimental and control group. It would hardly be ethical to withhold from a group a different program/service for the sake of research design. However, if a school jurisdiction needs more objective data, the time series design is considered acceptable. It consists of dividing a group of gifted students into subgroups and the teaching strategies into an equal number of units — the time assigned for each unit would be approximately the same. This design allows the evaluator to determine the program impact on one subgroup compared with other subgroups that have not yet received the treatment or teaching strategy.

Schematically, Callahan (1983) outlines the time series design as follows:

Time Series Design
(Illustration for Short-Term Goals)

100 Students for 1 Year
3 Units to be Taught

- Creativity Skills (CS)
- Research Skills (RS)
- Forecasting and Planning Skills (FPS)

Steps:

1. **Divide students into 3 equal groups** (# of units = # of groups):

   Group X, Group Y, Group Z
   Random assignments to groups is preferred

2. **Divide year into 3 parts** (# of parts = # of groups = # of units):

   September - November (1)
   December - February (2)
   March - May (3)

3. **Teach according to plan below:**

	Sept.-Nov.	**Dec.-Feb.**	**March-May**
Group X	CS	RS	FPS
Group Y	RS	FPS	CS
Group Z	FPS	CS	RS

- Pre-post test in September and November,
- Groups Y and Z serve as a comparison to Group X on achievement of CS skills,
- Groups X and Z serve as a comparison to Group Y on achievement of RS skills,
- Groups X and Y serve as a comparison to Group Z on achievement of FPS skills.

The other two time periods ensure that the other students receive the same instruction. However, it would be impossible to make comparisons between the groups who received the same unit of instruction.

Summary of How to Prepare a Formative Program Evaluation Report

Key Components	Significant Elements
1. Cover	• Title and location of program/services • Period covered by the report • Names of evaluators • Date
2. Summary	• Program/services evaluated • Methods used in evaluation • Findings and recommendations
3. Background	• History of program/services • Results of needs assessment • Goals of program/services • Student selection criteria • Type of program/services • Types of resource materials • Physical facilities • Funding • Program/services implementation • Staffing • In-service • Time allocated to program/services
4. Results	• Pre-test and post-test results • Implementation measurements • Components modified or dropped • Informal (anecdotal reports and questionnaires from staff, parents, and students) • Testimonials
5. Review of Program/Services Budget	Dollar Benefits • Dollar costs associated with program Non-Dollar Benefits • Amount of teacher and volunteer time • Program/services valued by various groups in community • Unanticipated benefits
6. Conclusion	Recommendations Three possible ways to categorize: • maintenance recommendations specify those positive things which are occurring on a regular basis, and should be continued; • consideration recommendations specify those things which could be addressed; and • problem areas specify those areas which must be addressed immediately.

The Use of Instruments to Make Subjective Information More "Objective"

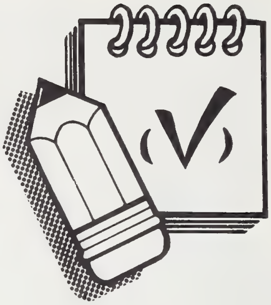
For samples of rating scales, checklists, and self-evaluation instruments, the reader is referred to "A Guidebook for Evaluating Programs for the Gifted and Talented" by Renzulli (1975). Sample questionnaires that may be modified or adapted to meet local needs for use with parents, teachers, and students are found in Appendix J. These are provided as examples; it is expected that the questionnaires would be tailored to reflect the goals and objectives of local program/services as well as the type of delivery model.

Use of Teacher Rating Scales

To assist teachers of the gifted with self-evaluation, and those educators responsible for assessing teacher performance, Martinson and Wiener (1968) have developed an instrument entitled "Rating Scale of Significant Behaviors in Teacher of the Gifted." Factor analysis has identified the following four salient factors in the teacher rating scale: **a)** individualized materials and instruction; **2)** the art of questioning; **3)** the encouragement of higher level learning; and **4)** communication - interaction.

In addition, the evaluator may wish to refer to the "Characteristics of Successful Teachers" delineated in Table 5, Chapter Two. Appendix K contains a sample form that may be adapted and modified for use with teachers of the gifted. It could also serve as a self-evaluation rating scale.

Key Elements — Chapter Five



1. Selecting person(s) to develop the evaluation design, oversee evaluation of program and student objectives, and produce the evaluation report.
2. Reviewing provincial guidelines, current research and literature on evaluation, and the jurisdiction's gifted/talented program plan.
3. Selecting and developing instruments and methods to be used in evaluation.
4. Conducting staff in-service and methods to be used in evaluation.
5. Evaluating the program (i.e., achievement of program and student objectives) by surveying teachers, students, administrators, other school staff, parents, and community members. Key elements to be evaluated are
   - Philosophy and rationale,
   - Identification procedures,
   - Program organization,
   - Program development and student objectives,
   - Staff development,
   - Parental/community involvement,
   - Evaluation procedures,
   - Pupil/student progress.
6. Compiling, analyzing, and reporting evaluation findings and recommendations to appropriate groups, agencies, and individuals.
7. Refining, expanding, and modifying program plans on the basis of evaluation results.
8. Determining effectiveness of evaluation instruments and changing them if necessary.
9. Determining what components of the program need to be evaluated during the next year.

References

Teacher Resources

Alberta Education. *The Goals of Basic Education.* Communications Branch, Alberta Education, 1978.

Alberta Education. *Educating Gifted and Talented Pupils in Alberta: Report of the Minister's Task Force on Gifted and Talented Pupils.* Planning Services, Alberta Education, 1983.

Alberta Education. *Review of Secondary Programs. Report of the Minister's Advisory Committee: Foundations for the Future,* 1985.

Alberta Education. *Special Education Manual.* Edmonton, Alberta: Special Educational Services Branch, Alberta Education, 1985.

Alexander, P., and Muia, J. *Gifted Education - A Comprehensive Roadmap.* Rockville, Maryland: Aspen Systems, 1982.

Barbe, W.B., and Renzulli, J.S. eds. *Psychology and Education of the Gifted.* 3rd Ed. New York: Irvington Press, 1981.

Betts, G. and Knapp, J. *The Autonomous Learner.* Greeley, Colorado: Autonomous Learning Publications, 1983.

Bloom, Benjamin S. Ed. *Taxonomy of Educational Objectives, Handbook I: Cognitive Domain,* New York: David McKay Co., 1956.

Clark, B. *Growing Up Gifted.* 2nd Ed. Columbus, Ohio: Charles E. Merrill, 1983.

Colangelo, N., and Zaffrann, R.T. Eds. *New Voices in Counselling the Gifted.* Dubuque, IA: Kendall/Hunt, 1979.

Crabbe, A.B. *Guidance and Counselling of Gifted Children.* Lincoln, Nebraska: Nebraska Department of Education, 1980.

Doorly, A. *Microcomputers for Gifted Microtots.* G/C/T, 1980.

Dunn, R., and Dunn, K. *Educator's Self-Teaching Guide to Individualizing Instructional Programs.* West Nyack, NY: Parker, 1975.

Ennis, R.H. "A Concept of Critical Thinking." *Harvard Educational Review, 32(1),* 1962, pp. 81-111.

Gallagher, J.J. *Teaching the Gifted Child.* 3rd Ed. Boston: Allyn and Bacon, 1985.

Gowan, J.C., Khatena, J., and Torrance, E.P. Eds. *Educating the Ablest.* 2nd Ed. Itasca, IL: F.E. Peacock, 1979.

Gregorc, A.F. *Gregorc Style Delineator: Development, Technical and Administrative Manual.* Maynard, MA: Gabriel Systems, 1982a.

Gregorc, A.F. *An Adult's Guide to Style.* Maynard, MA: Gabriel Systems, 1982b.

Katz, E. "Microcomputers: A Course for Gifted Students." *Focus on Exceptional Children,* Vol. 15(6), 1983.

Khatena, J. *Educational Psychology of the Gifted.* New York: John Wiley, 1982.

Maker, C.J. *Curriculum Development for the Gifted.* Rockville, Maryland: Aspen Publications, 1982a.

Maker, C.J. *Teaching Models in Education of the Gifted.* Rockville, Maryland: Aspen Publications, 1982b.

Millar, G.W. *Gifted Children.* Edmonton, Alberta: Planning and Research, Alberta Education, 1979.

Millar, G.W. "Myths that Plague the Development and Implementation of Programs for the Gifted: A Visual Study." *Special Education in Canada,* 56(1), 1981, pp. 12-14.

Millar, G.W., and MacLeod, A.R. *Microcomputer Learning Project.* Edmonton, Alberta: Planning Services Branch, Alberta Education, 1985.

Moody, G.J. *Visual Arts in Gifted Program. Thirty-One Current Programs Described.* Greeley, Colorado: Creative Arts Center, 1983.

Renzulli, Joseph S. *A Guidebook for Evaluating Programs for the Gifted and Talented.* Ventura County, Ventura, California, 1975.

Renzulli, J. *The Enrichment Triad Model: A Guide for Developing Defensible Programs for the Gifted and Talented.* Mansfield Center, Connecticut: Learning Press Inc., 1977.

Renzulli, Joseph S. "What Makes Giftedness?" *Phi Delta Kappan,* November 1978.

Renzulli, J.S., and Smith, L.H. *The Learning Styles Inventory: A Measure of Student Preference for Instructional Techniques.* Mansfield Center, CT: Creative Learning Press, 1978.

Sellin, D.F., and Birch, J.W. *Educating Gifted and Talented Learners.* Rockville, MD: Aspen Systems, 1980.

Stelmaschuk, Marion. "The View from the Other Side." *Teaching Atypical Students in Alberta,* Vol. 12, Number 2, 1983.

Tannenbaum, A.J. *Gifted Children: Psychological and Educational Perspectives.* New York: Macmillan, 1983.

Taylor, C.W. "Multiple Talent Teaching." *Today's Education,* Spring 1974.

Taylor, C.W. Ed. *Teaching for Talents and Gifts: 1978 Status.* Washington, DC: National Institute of Education, 1978.

Torrance, E.P. *The Search for Satori and Creativity.* Buffalo, New York: Creative Education Foundation, Inc., 1979.

Torrance, E.P. *Manifesto for Children.* Staunton, VA: Full Circle Counselling Inc., 1983.

Torrance, E.P. "Teaching Creative and Gifted Learners." *American Educational Research. Association Handbook of Research on Teaching,* Third Edition, Wittrock, M. Ed., 1984.

Bibliography

Addison, L. (1979) "Simulation Gaming and Leadership Training for Gifted Girls." *Gifted Child Quarterly,* 23, 1979, pp. 288-296.

Allen, D.W., and Plante, J. "Looking at the Future in Education." *World Future Society Bulletin,* 13(2), 1979, pp. 27-33.

Berghofer, D. "A Future Perspective in Secondary Education." *The Annual Joint Conference of Alberta School Superintendents and Alberta Education.* Edmonton, Alberta: 1985.

Bloom, B.S. *Developing Talent in Young People.* New York: Ballantine Books, 1985.

Callahan, Carolyn M. "Issues in Evaluating Programs for the Gifted." *Gifted Child Quarterly,* 27, 1, 1983.

Callahan, C.M., and Renzulli, J.S. "The Effectiveness of a Creativity Training Program in the Language Arts." *Gifted Child Quarterly,* 21, 1977, pp. 538-546.

Chetelat, F.J. "Visual Arts Education for the Gifted Elementary Level Art Student." *Gifted Child Quarterly,* 25, 1981, pp. 154-158.

Colangelo, N., and Zaffrann, R.T. Ed. "Special Issues in Counselling for the Gifted." *Counselling and Human Development,* Volume II, Number 5, 1979.

Cox, J. "Advanced Placement: An Exemplary Honors Model." *G/C/T,* Issue 26, 1983, pp. 47-51.

Crabbe, A.B. "Creating a Brighter Future: An Update on the Future Problem Solving Program." *Journal for the Education of the Gifted,* 5, 1982, pp. 2-11.

de Bono, E. *CoRT Thinking Lesson Series.* Blandford Forum, Dorset, U.K.: Direct Education Services, 1976.

Dover, A. "Computers and the Gifted: Past, Present, and Future." *Gifted Child Quarterly,* 27(2), 1983.

Dunn, R.S., and Price, G.E. "The Learning Style Characteristics of Gifted Students." *Gifted Child Quarterly,* 24, 1980, pp. 33-36.

Feldhusen, J.F. *Leadership Training for the Gifted.* West Lafayette, IN: Purdue University Gifted Program, 1978.

Feldhusen, J.F., and Treffinger, D.J. "The Role of Instructional Material in Teaching Creative Thinking." *Gifted Child Quarterly,* 21, 1977, pp. 450-476.

Foster, W. "Leadership: A Conceptual Framework for Recognizing and Educating." *Gifted Child Quarterly,* 25, 1981, pp. 17-25.

Frasier, M. and Carland, A. *Dictionary of Gifted, Talented, and Creative Education Terms.* New York, New York: Trillium Press, 1982.

Frasier, M. and McCannon, C. "Using Bibliotherapy with Gifted Children." *Gifted Child Quarterly,* 25, 1980, pp. 81-85.

Galeman, D. "1528 Little Geniuses and How They Grew." *Psychology Today,* February, 1980, pp. 28-53.

Gear, G.H. "Providing Services for Rural Gifted Children." *Exceptional Children,* 50, January 1984, pp. 326-331.

George, W.C. "Research Issues in Educating America's Gifted Youth." *G/C/T,* Issue 27, 1983, pp. 20-21.

Getzels, J.W., and Dillon, J.T. "The Nature of Giftedness and the Education of the Gifted." *In Second Handbook of Research on Teaching.* R.M. Travers Ed. Chicago: Rand McNally, 1973.

Ginsberg, G. *Is Your Child Gifted?* New York: Simon and Schuster, 1976.

Grave, E. *Is Your Child Gifted? A Handbook for Parents.* San Diego, California: Oak True Publications, Inc., 1982.

Hensel, N., and Franklin, C. "Developing Emergent Leadership Skills in Elementary and Junior High Students." *Roeper Review,* 5(4), 1983, pp. 33-35.

Hoffman, J.G. "Inventions." *G/C/T,* Issue 24, 1982, pp. 54-55.

Johnson, N.A. "A Survival Kit for Parents of Gifted Children." *Challenge: Reaching and Teaching the Gifted Child.* Premier Issue, March 1982, pp. 9-13.

Kaplan, Sandra. *Providing Programs for the Gifted and Talented: A Handbook.* Ventura, California: Office of Ventura County Superintendent of Schools, 1977.

Kaplan, S.N. "Myth: There is a Single Curriculum for the Gifted!" *Gifted Child Quarterly,* 26, 1982, pp. 32-33.

Kaufmann, F. *Your Gifted Child and You.* Reston, VA: Council for Exceptional Children, 1976.

Khatena, J. *Creatively Gifted Child: Suggestions for Parents and Teachers.* New York: Vantage Press, 1978.

Kozak, L. "A Differentiated Curriculum for Gifted and Computer Talented Students." Paper prepared especially for this manual, 1985.

Lewis, D. *How to Be A Gifted Parent.* New York: Norton, 1981.

Lindsay, B. "A Lamp for Diogenes: Leadership, Giftedness, and Moral Education." *Roeper Review,* 1(4), 1979, pp. 4-7.

Lipman, M. *Harry Stottelmeier's Discovery.* Montclair, NJ: Institute for the Advancement of Philosophy for Children, Montclair State College, 1974.

Lipman, M., Sharp, A.M., Oscanyan, F.S. *Philosophical Inquiry: An Instructional Manual to Accompany Harry Stottelmeier's Discovery.* 2nd Ed. Montclair, NJ: Institute for the Advancement of Philosophy for Children, Montclair State University, 1979.

Marland, S. *Education of the Gifted and Talented. Report to the Congress of the United States by the U.S. Commissioner of Education,* U.S. Government Printing Office: Washington, D.C., 1972.

Martinson, R.A., and Wiener, J. *The Improvement of Teaching Procedures with Gifted Elementary and Secondary School Students.* Project No. 6-1244 Final Report, Washington, D.C. Bureau of Research, U.S. Office of Education, 1968.

McCarthy, B. *The 4 MAT System: Teaching to Learning Style with Right/Left Mode Techniques.* Arlington Heights, IL: Excel, Inc., 1980.

Miller, B. and Price, M. Eds. *The Gifted Child, the Family and the Community.* New York, New York: Walker and Company, 1981.

Moore, L.P. *Does This Mean My Kid's a Genius?* New York: McGraw-Hill Book Company, 1981.

Myers, R.E., and Torrance, E.P. *Wondering: Invitations to Think About the Future for Primary Grades.* Mansfield Center, CT: Creative Learning Press, 1984.

Naisbitt, J. *Megatrends: Ten New Directions Transforming Our Lives.* New York: Warner Books, 1982.

Noller, R.B., and Frey, B.R. *Mentoring: An Annotated Bibliography.* Buffalo, NY: Bearly Limited, 1983.

Perkins, D.N. *The Mind's Best Work.* Cambridge, MASS: Harvard University Press, 1981.

Prentky, Robert A. *Creativity and Psychopathology: A Neurocognitive Perspective.* Praeger, 1980.

Renzulli, Joseph S. In "Thinking Through the Evaluation Process: An Interview with Dr. Joseph Renzulli." by Thomas M. Buescher, Assoc. Ed. *Journal for the Education of the Gifted,* Vol. 7, No. 1, Fall 1983.

Renzulli, J.S., Hartman, R. "Scale for Rating Behavioral Characteristics of Superior Students." *Exceptional Children,* Vol. 38, No. 3, 1971, pp. 243-248.

"Richardson Creativity Award 1970, Calvin W. Taylor." *American Psychologist.* Vol. 26, No. 1, January 1971, pp. 96-99.

Rubenzer, R.L. *Educating the Other Half: Implications of Left/Right Brain Research.* Reston, VA: Council for Exceptional Children, 1982.

Silvernail, D.L. "Gifted Education for the 80's and Beyond." *Roeper Review,* 2(4), 1980, pp. 16-18.

Stallings, C. *Gifted Disadvantaged Children.* Storrs, Connecticut: The University of Connecticut, 1972.

Stanley, J.C. "On Educating the Gifted." *Educational Researcher,* 9, 1980, pp. 8-12.

Stein, Morris I. *Stimulating Creativity.* Academic Press, (2 volumes), 1974.

Stevenson, G. et al. *Igniting Creative Potential.* Salt Lake City, Utah: IBRIC, 1971.

Tannenbaum, A.J., and Newman, E. *Somewhere to Turn: Strategies for Parents of Gifted and Talented Children.* New York: Teachers College Press, 1980.

Taylor, C.W. "Be Talent Developers...As Well As Knowledge Dispensers." *Today's Education.* NEA Journal, December 1968, pp. 67-69.

Taylor, C.W. "Developing Effectively Functioning People - The Accountable Goal of Multiple Talent Teaching." *Today's Education,* Nov.-Dec. 1973.

Taylor, C.W. *Opportunities for Creativity and Communications,* Booklet 1 - Teacher's Manual. Salt Lake City, Utah: IBRIC, 1977.

Torrance, E.P. "Understanding Creativity in Talented Students." Paper prepared for the Summer Guidance Institute Lecture Series on "Understanding the Talented Student," University of Minnesota, July 16, 1959.

Torrance, E.P. "Curriculum Frontiers for the Elementary Gifted Pupil - Flying Monkeys and Silent Lions." *Exceptional Children,* 1961.

Torrance, E.P. "The Courage to Be Creative." *Retail Credit Company Inspection News,* 56(4), 1971, pp. 8-11.

Torrance, E.P. "Creativity and Futurism in Education." *Retooling Education,* 100, 1980, pp. 298-311.

Torrance, E.P., and Myers, R.E. *Creative Learning and Teaching.* New York, New York: Harper and Row Publishers, 1970.

Torrance, E.P., and Ball, O. *Torrance Tests of Creative Thinking - Streamlined Manual.* Revised Ed. Bensenville, Illinois: Scholastic Testing Services Inc., 1984.

Treffinger, D.J., and Wittig, C.V. *IPPM Needs Assessment Inventory.* Williamsville, NY: Center for Creative Learning, 1980.

Tyler, S., and de Bono, E. *Just Think.* Series of programs to promote thinking for ECS through Grade 8. Available from Thomas Geale Publications, Inc., 1142 Manhattan Avenue, Drawer C.P. 223, Manhattan Beach, California, U.S.A. 90266.

Webb, J.T., Meckstroth, E.A., and Tolan, S.S. *Guiding the Gifted Child: A Practical Source for Parents and Teachers.* Columbus, OH: Ohio Publishing Company, 1982.

Weber, S. *Educational Programs for the Gifted and Talented: A Survey.* Edmonton, Alberta: Alberta Education, 1982.

Weiss, Patricia, and Gallagher, James. *Report on Education of Gifted, Volume II, Program Effectiveness, Education of Gifted and Talented Students: A Review.* Frank Porter Graham Child Development Center, University of North Carolina at Chapel Hill, North Carolina, 1983.

Williams, Frank E. *Classroom Ideas for Encouraging Thinking and Feeling.* Buffalo, NY: D.O.K. Publishers, Inc., 1970.

Williams, F. *Performance Levels of a School Program Survey.* Buffalo, New York: D.O.K. Publishers, Inc., 1979.

Selected Annotated Bibliography of Other Resources for Teaching Gifted Children

These titles of the learning resources identified were provided through the courtesy of the contractors. None of these titles have been evaluated by Alberta Education and their listing is not to be construed as an explicit or implicit departmental approval for use. These titles are provided as a service only to assist local jurisdictions to identify potentially useful learning resources. The responsibility to evaluate these resources prior to selection rests with the local jurisdiction.

Part I - General

Alexander, N.L. *Able and Ambitious Projects.* Educational Impressions, Hawthorne, N.J., 1983.

Forty projects for individual development. The projects are described but open-ended in terms of the specfic content. The student is required to report orally to the whole class. This is easily modified to a written report. A well written explanation of procedures and evaluation is given as well as sample evaluation forms. The range of projects may be adapted from grades one to twelve.

Bayley, M.T., and Lynch, V.L. *Units: A Resource Guide of Differentiated Experiences for Gifted Elementary Students.* Vol. 1. New Dimensions of the 80's Publications, Woodcliffe Lake, N.J., 1983.

Units in Language Arts, Science, and Social Studies. Extensive introduction with material on learning and curriculum for gifted students; strategies and elements for implementation; unit design; methods and procedures for evaluation.

Butterfield, S.M. et al. *Developing IEPs for the Gifted/Talented.* National/State Leadership Training Institute on the Gifted and the Talented, Los Angeles, CA., 1979.

Describes legal implication (specifically U.S.), a practical model, diagnosis and curriculum development in individualized educational programs (IEPs). An excellent resource for those wishing a strong theoretical and practical background in IEPs.

Christen, W., et al. *Developing Study Skills, and Guidebook for Building Study Skills.* Dubuque, Iowa: Kendall/Hunt, 1983.

Much information and many practical class exercises are contained in the above texts. Materials are excellent for a complete study unit but much revision and adaptation is needed by the teacher. Developing Study Skills (for Grades 10-12) was used for the junior high gifted. The junior high book, Guidebook for Building Study Skills, would be useful in elementary.

de Bono, E. *CoRT Thinking I, II, III, IV, V.* Willowdale, Ont: Pergamon Press Ltd., 1981.

Cognitive research trust thinking skills books present an excellent program for lateral (or divergent) exercises. Each book sequentially deals with ten lessons, divided into three lessons per unit. The first two lessons of each set deal with a specific skill followed by the third lesson which incorporates for application the two skills learned. This is one of the best thinking skills programs available but it is highly recommended to attend a workshop or visit a classroom where CoRT is being used. Complement CoRT classes with additional lateral puzzles and problems at the junior high level as students need the variety. Grades ECS through 12+. Teacher's Manual included.

de Bono, E. *CoRT - VI Action.* Willowdale, Ont.: Pergamon Press Ltd., 1981.

An excellent program which can be used separately or following CoRT I-V. As it is a "total package" of skills needed for independent research or creative writing, it is advisable to do CoRT I-V first. Some junior high students thought the extended use of symbols was intellectually demeaning. University students did not mind the use of symbols. Course centered around discussion. Grades ECS through 12+. Teacher's Manual included.

Eberle, R.F. *SCAMPER.* Buffalo, N.Y. 14214: D.O.K. Pub., 1977.

This is a small book of games for imagination development. The acronym SCAMPER outlines techniques: substitute, combine, adopt, modify, put to other uses, eliminate, and rearrange. Two people must "scamper." Techniques in "game" format appear similar to the techniques in TEC-PISCO of the CoRT series. An excellent complement to use in any group. Grades ECS - adult.

Gourley, T., and Micklus, C.S. *Problems! Problems! Problems!* Glassboro, N.J. 08028: Creative Competitions Inc., 1982.

Text is a compilation of discussion topics and problems and long-range activities that will give the students practice in group competition for Olympics of the Mind. A very useful supplement but requires long-range teacher planning to direct the problem solving practical exercises. This book would appeal to the Science Fair and Olympics of the Mind competitors. One may need a team of teachers and/or mentors to implement ideas. Grades 5-9.

Harnadek, A. *Critical Thinking Book 1 and 2.* Pacific Grove, CA. 93950: Midwest Pub., 1980.

Each book presents excellent resources that work best in conjunction with other thinking programs. Exercises can be used in sequence, can be a complete thinking skills program as well. Course centred around discussion of reasons for answers. Junior high tired quickly, if no alternate skills programs were offered. Grades ECS-9.

Kaplan, S. *Providing Programs for the Gifted and Talented: A Handbook.* Los Angeles, CA.: National/State Leadership Training Institute on the Gifted and Talented.

A text designed for those wishing general information on how to design a program, prepare curricula and programs. It is intended as a handbook of supplemental resources and needs to be supplemented with additional literature about the gifted and talented. It is a practical guide which indicates the things a reader must know and do in order to formulate a program. The focus is on what a program needs and how these needs can be met. Useful for all grade levels.

Kaplan, S.N., Kaplan, J.A.B., Madsen, S.K., and Gould, B.T. *Change for Children: Ideas and Activities for Individualizing Learning.* 2nd Ed. Glenview, IL.: Scott, Foresman and Co., 1980.

The activities and techniques in this book provide a guide and model for teachers in traditional and special classrooms to individualize learning. A step-by-step approach to changing the classroom environment, developing and placing learning activities in the room, and devising plans and schedules of teacher and student time is provided. Also included are ideas and forms for record keeping and evaluation. A large number of worksheets are included. Intended for primary grades but easily adapted to junior and secondary levels.

Karnes, Frances A., and Collins, Emily C. *Handbook of Instructional Resources and References for Teaching the Gifted.* Boston: Allyn and Bacon, 1980.

Kerstiens, Gene. *A Fast Course in Speed Reading.* Dubuque, Iowa 52001: Educulture, 2460 Kerper Blvd., 1975.

A small book of 49 pages which can be used with or without an additional Timing and Instruction Cassette. Has all of the elements of speed reading well covered but one needs a support reference on some of the theory for background. Well paced for junior high.

Leonard, J., Hoyt, M.S., Malley-Grist, J., and Greene, J. *A Planning Guide for Gifted Preschoolers.* Winston-Salem, N.C.: Kaplan Press, 1978.

Provides rationale, planning guide, record keeping guide, and self-paced workshop based on Bloom's taxonomy. Ten major units with individual lessons and an annotated curriculum bibliography are given.

Lewis, C.L., Buckley, S.M., Canton, M.A. Pegasus. *Providing Enrichment for the Gifted: Adapting Selected Units of Study.*

Assumes the need to modify and individualize programs for the gifted. A compilation of thematic units that covers skills in both affective and cognitive thinking, creativity and communications are given for the cognitive domain and personal growth and motivation for the affective domain. Primarily for junior and senior high, but may be adapted for the exceptional Grade 5 or 6 child.

Lipman, M. Ed. *Thinking.* Montclair, N.J. 07042: First Mountain Foundation, Institute for Advancement of Philosophy for Children, 1983.

An excellent journal of philosophy in education. Good for all level teachers. Complements the Thinking Skills Course for Children.

Meeker, M., and Maxwell, J. *Structure of Intellect.* Segundo, CA.: S.O.I. Institute, 1976.

The five books present another excellent lateral thinking program. Can be complete as is in using the diagnostic testing, the exercise units and follow-up evaluations. Based on Guilford's model. The texts clearly explain purpose and delivery of each exercise. Course is centred around reading and discussion but much is dependent on reading. Junior high students did not respond well to the over-simplified text for each exercise. Teacher's Manual and Test materials included. Grades ECS-12.

Noller, R.B. et al. *It's A Gas to Be Gifted, or CPS for the G/T.* Buffalo, N.Y. 14214: D.O.K. Publishers, Inc., 1979.

This small text of 52 pages clearly gives the "formula" for creative problem solving and can be used as the basis for many adaptations for grade level and for varied situations. Grades 1-12.

Parnes, S.J. *Creativity: Unlocking Human Potential.* Biondi, A.M. The Creative Process, Western Educ. Activities, P.O. Box 3806, Station D, Edmonton, Alberta, T5H 2S7.

Two small reference booklets, excellent ideas, quick to read with selected bibliography included.

Renzulli, J.S. *The Enrichment Triad Model: A Guide for Developing Defensible Programs for the Gifted and Talented.* Mansfield Center, Conn.: Creative Learning Press, 1977.

This book has three purposes:

1. to register concern about the appropriateness of many activities that parade under the bonnet of gifted education;
2. to present an enrichment model that can be used as a guide in the development of qualitatively different programs for the gifted;
3. to present practical suggestions for enriching the learning experiences of gifted children.

An excellent small text for those interested in developing programs for the gifted at all grade levels. May be used in conjunction with many other resources.

Renzulli, J.S., and Smith, L.H. *A Guidebook for Developing Individualized Education Programs (IEP) for Gifted and Talented Students.* Mansfield Centre, Conn.: Creative Learning Press, 1979.

Provides teachers and administrators with a practical model for individualization and step-by-step procedures necessary for implementing the program, and provides a sound rationale for special programming. An easily read and implemented system with guided instruction and sample forms.

Spargo, E. *The Now Student Reading and Study Skills.* Providence, R.Is. 02940: Jamestown Pub., 1977.

This text is an excellent combination of reading skills, study skills, taking test exercises. Text is geared to a grade 10 reading level. Most helpful is that each exercise throughout the text is still geared to a reading rate exercise and total score and % comprehension can be tested throughout the text. Definitely good for gifted verbal junior high. Grades 9-12.

Treffinger, D.J. *Encouraging Creative Learning for the Gifted and Talented: A Handbook of Methods and Techniques.* Los Angeles, CA.: National/State Leadership Training Institute on the Gifted and Talented, 1980.

A practical resource guide for the teacher giving methods and techniques for encouraging creative learning. Provides a three-stage model for developing creative thinking and broad-based instructions for implementing practical designs. Useful at all grade levels.

Weber, P. *Design for Differentiation: An Introductory Guide to Meeting the Needs of All Students.* Buffalo, N.Y.: D.O.K. Pub., 1983.

The purpose of this guide is to support the teacher's decision to attempt differentiation by

1. providing a basic procedure of developing curricula and activities that allow for and enhance the individuality of each student;
2. supplying practical suggestions that can be implemented without a complete revision of classroom procedure or structure;
3. demonstrating that the attainment of the highest ideals of teaching is possible;
4. indicating that "idealism" (i.e., taking individualized instruction) can become "realism" (i.e., doing individualized instruction).

Suitable for all grade levels.

Wooster, J.S. *What to Do for the Gifted Few: A Handbook of Strategies for Differentiating Instruction for Gifted/Talented Students.* Buffalo, N.Y.: D.O.K. Publishers, 1978.

The differentiation model identifies elements of the program that can be varied to meet the needs of gifted children. The model is structured to identify options in any program so that differentiation is possible.

This small, very readable book is an excellent resource for those who wish to meet the needs of gifted children without a massive restructuring of their current programs. Suitable for all grade levels and a good resource when used with supplementary materials.

Independent Study

Crosby, N., and Marten, E. ‘‘Don’t Teach...let me learn’’ series. Buffalo, N.Y.: D.O.K. Publishers. Send for catalogue.

Doherty, J.S., and Evans, L.C. *Self-Starter Kit for Independent Study.* Austin, Texas: Special Education Association, 1980.

Edmonton Public Schools. *Independent Study Projects,* 1983.

Kaplan, S.N., Madsen, S.K., and Gould, B.T. *The Big Book of Independent Study: Hands-on Material Ready to Use in the Classroom.* Pacific Palisades, CA.: Goodyear Publishing, 1976.

Prima-Kit. *Engine-Uity.* Phoenix, Arizona, 1983. For primary children, ready-to-go, hands-on.

Villalpando, E., and Kolbe, K. *Independent Projects: A Guidance System for Getting Students Involved in Self-Designed Independent Projects.* Phoenix, Arizona: Think Ink Pub., 1979.

White, J., and Bazan, J. *Micro-studies.* Dawson Creek, B.C.: Making Tracks, 1982.

Part II - Specialized

The materials cited below have been selected because of their emphasis upon prepared and tested materials ready-to-go for the teacher. These materials often include step-by-step instructions in particular areas as well as teacher and student guides and worksheets.

A. Problem Solving/Reasoning/Creative Thinking

Babcock, E., and Brown, M. *The Art of Perceiving Problems.* LaHabra, CA: Foxtail Press, 1980.

Primary grades.

Brown, M., Babcock, E., and Lewis, B. *A Way With Problems.* LaHabra, CA: Foxtail Press, 1979.

Primary grades.

Brown, M., and Babcock, E. *The Art of Resolving Problems.* LaHabra, CA: Foxtail Press, 1980.

Primary grades.

Daling, G.A. *Creative Problem-Solving for an Eency-Weency Spider.* Buffalo, N.Y.: D.O.K. Publishers, 1983.

Primary grades.

Eberle, R., and Stanish, R. *C.P.S. for Kids.* Buffalo, N.Y.: D.O.K. Publishers, 1980.

Thirty creative problem solving activities with rationale.

Gourley, T.J., and Micklus, C.S. *Problems! Problems! Problems!* Glassboro, N.J.: 08028: Creative Competitions Inc., 1982.

Olympics of the mind program on creative thinking. All levels.

Harnadek, A. *Mind Benders Series.* Troy, Mi.: Midwest Publishing Co. Inc.

All levels. Send for catalogue.

McGee-Cooper, A. *Building Brain Power.* Tucson, Az.: Zephyr, 1982.

Adaptable to all levels.

Stanish, R. *Hippogritt Feathers.* Carthage, Il.: Good Apple Inc., 1981.

Creative thinking units, adaptable to all levels.

Stanish, R. *I Believe in Unicorn.* Carthage, Il.: Good Apple Inc., 1979.

Same as above.

B. Affective Skills

Canfield, J., and Wells, H.C. *100 Ways to Enhance Self-Concept in the Classroom.* Englewood Cliffs, N.J.: Prentice-Hall, 1976.

Casteel, J.D. *Learning to Think and Choose: Decision-Making Episodes for the Middle Grades.* Santa Monica, CA.: Goodyear, 1978.

Casteel, J.D., and Stahl, R.J. *Value Clarification in the Classroom: A Primer.* Santa Monica, CA.: Goodyear, 1975.

Eggers, J.R. *Can - Will You Help Create the Future Today?* Terry. Buffalo, N.Y.: D.O.K. Publishers, 1981.

Gelatt, H.B., Varenhorst, B., Coney, R., and Miller, G.P. *Decisions and Outcomes.* New York, N.Y.: College Entrance Examination Board, 1973.

Gelatt, H.B., Varenhorst, B., Coney, R., and Miller, G.P. *Decisions and Outcomes: A Leader's Guide.* New York, N.Y.: College Entrance Examinations Board, 1973.

McGee-Cooper, A. *Time Management for Unmanageable People.* Tucson, Az.: Zephyr, 1983.

A New Generation of Leadership. Los Angeles, CA.: National/State Leadership Training Institute on the Gifted and Talented.

Simon, S.B., Hume, L.W., and Kirschenbaum, H. 2nd Ed. *Values Clarification: A Handbook for Practical Strategies for Teachers and Students.* New York, N.Y.: A & W Pub., 1978.

C. Thematic Integrated Materials

Croley, J.P., and Bagley, M.J. *Suppose the Wolf Were an Octopus? A Guide to Creative Questioning for Primary Grade Literature.* Woodcliff Lake, N.J.: New Dimensions of the 80's Pub., 1981.

Edmonton Public Schools. *Enrichment Units for the Primary Grades.* 1983.

Edmonton Public Schools. *Enrichment Units for the Elementary Grades.* 1983.

Hurwitz, A. *The Gifted and Talented in Art: A Guide to Program Planning.* Worcester, Mass.: Davis Pub., 1983.

Kenney, A. *A Creative Writing Companion to...The Investigation of Real Problems.* Woodcliff Lake, N.J.: New Dimensions of the 80's Pub., 1981.

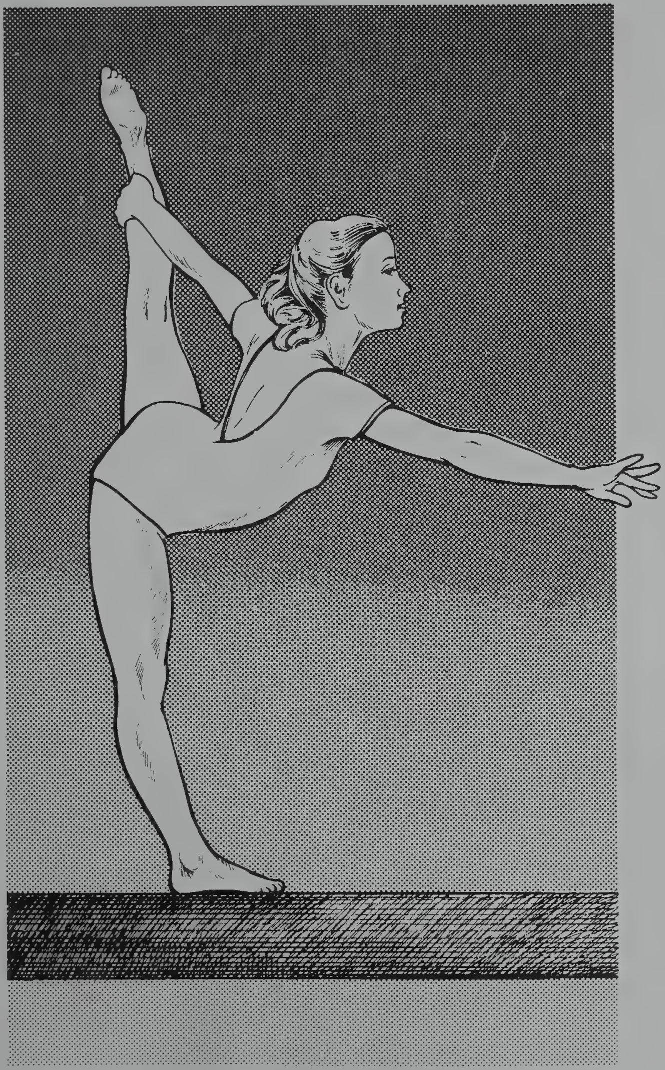
Lipson, G.B., and Morrison, B. *Fact, Fantasy and Folklore: Expanding Language Arts and Critical Thinking Skills.* Carthage, Il.: Good Apple Inc., 1979.

Polette, N. *3 R's for the Gifted: Reading, Writing and Research.* Littleton, Colorado: Libraries Unlimited, 1982.

Project Series. *Capabilities Unlimited,* Inc. New York, N.Y. Send for catalogue.

Vezza, T., and Bagley, M.T. *The Investigation of Real Problems: A Teacher's Handbook for Developing Higher Level Thinking Skills in Gifted and Talented Children.* Woodcliff Lake, N.J.: New Dimensions of the 80's Pub., 1979.

Appendices



Appendix A

Key Components of Learning in the Future

*The Development of a Desirable and Reasonable Future: Key Components of Learning**

1. Development of tool skills (competencies so that an individual can become self-reliant.)
2. Development of a healthy spiritual life.
3. Development of the intuitive processes to balance the heavy bias of analytical, reductionist thought.
4. Appreciation of the role of science and its relationship to technology.
5. Development of the facility in the use of computational and communication technology.
6. Appreciation of the global interdependence and tolerance for an ecology of cultures.
7. Appreciation of the place of mankind in nature and the need for harmony between nature and natural ecosystems.

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* ***Taken from an address by Desmond Berghofer (1985).***

Appendix B

Selected Films and Filmstrips: Visual Resources

Selected Films and Filmstrips on the Gifted, Creative, and Talented

Title	Brief Description	Availability
1. Sit Down, Shut Up or Get Out 53 min. Color/Sound Producer: NBC News 1971	Although produced in 1971, this film still retains much of its relevance (ignore mini-skirts). Because it is a dramatization rather than a documentary it tends to polarize issues; the characters may also be somewhat overplayed in order to emphasize the points made in the film. However, some of these points are valid, dealing as they do with difficulties a non-conforming junior high school student encounters in gaining understanding and acceptance by his teachers. The film is interesting, but because of its provocative nature, it should be viewed (or shown) with caution and is best used as preliminary to further discussion when much of its emotional impact can be defused.	Alberta Education Edmonton
2. The Gifted Child 40 min. Color/Sound Producer: BBC-TV (London) 1970	This British film gives an overview of the range of giftedness and some of the provisions made for gifted children in England in the late 1960s. In spite of its age, much of what it has to say is still valid, with several noted educational psychologists expressing their views on giftedness, talent, and creativity. There are also some very interesting sequences highlighting the Yehudi Menuhin School for musically talented children, and a London institute for gifted children who participate in learning situations in which art and sciences are combined.	Calgary Board of Education Media Services
3. Shows Promise, Should Go Far 45 min. Color/Sound Producer: Marland (Distributor) 1975	This British made-for-TV documentary holds considerable appeal for a wide range of viewers, and is particularly popular with parent groups (although they are often rather overawed by the single-minded dedication to child-rearing demonstrated by the mother in the film). The focus of the film is on highly gifted (but very different) children, of a far from advantaged family, living in a remote cottage in a village in Wales. Although the children themselves are fascinating, of equal interest is their very articulate Italian mother who has applied her Montessori training to the task of bringing up her children.	University of Calgary

4. Creative Problem Solving: How To Get Better Ideas 27 min. Color/Sound 1979	Shows how the act of creative problem solving can be developed in each individual but is often inhibited by criticism or lack of self-confidence. Animated sequences explore the psychological underpinnings of creativity according to Freud and the "split brain theory."	McGraw-Hill Films
5. It's Cool to be Smart 23 min. Color/Sound 1978	Examines several programs for the gifted. Children discuss the benefits of their programs, and views how many of the qualities that identify the gifted — intellect, compassion, leadership, and creativity — are fostered.	McGraw-Hill Films
6. The I.Q. Myth 51 min. Color/Sound 1978	An examination of the ways in which the I.Q. concept has been used and misused. The film focuses on exactly how much importance, if any, should be placed on the result of a single test which may have been to a child no more than six years old. The film weighs factors of heredity, environment, and on what premises the tests are constructed.	Marlin Motion Pictures
7. Gifted Students 9 min. Color/Sound 1979	You see some special arrangements used with the gifted — the resource room, cluster groupings in regular classes, parent-led discussion groups. You sit in on lessons that stress problem-solving, flexibility, and reflective thinking — all important goals for gifted children.	Omega Films
8. Teenage Whiz Kids 11 min. Color/Sound 1980	The problem of the gifted child or prodigy has traditionally been the paradox of a mature intellect lodged in physical and emotional adolescence. How an engaging group of youngsters aided by a child psychologist approach the dilemma is the subject of this film.	International Tele-Film Enterprises
9. Special Education Techniques: Lab Science and Art 24 min. Color/Sound 1979	This film shows both gifted and ordinary blind children performing science and art activities in a self-contained elementary classroom. The importance of the experimental multisensory approach is stressed in order to achieve the goals of concept and reasoning development.	McGraw-Hill Films

10. Why Man Creates 25 min. Color/Sound 1970	Combines humor, satire, and irony with serious questions about the wellsprings of the creative person. A series of explorations, episodes, and comments on creativity. Organized into eight major sections: The Edifice, an animated history of the world man has built on ideas; Fooling Around, illustrations of how ideas can begin in the play of the creative mind; The Process, the young creator's struggle; Judgement, society makes its contribution to the creative process — the fate of an unaverage bouncing ball throws some light on the creator's place in the world; Digression, a statement of the possible relationship between ideas and institutions; The Search, a close-up view of the patient process by which scientists develop new ideas; and finally, The Mark, the question of why people need to create is explored.	International Tele-Film Enterprises
11. John Baker's Last Race 35 min. Color/Sound 1976	The true story of a champion athlete with cancer who was given only six months to live. His last race, the race for life, became his greatest: dedicating his life to children. With this film, his influence can go on and inspire.	International Tele-Film Enterprises
12. Gifted Kids 28 min. Color/Sound 1984	Exceptional or gifted children represent a great potential for society, yet the majority of these children go unrecognized because public educational systems are not geared to challenge their academic, artistic, and personal growth. This documentary, through interviews with teachers, parents, and gifted students, looks at one of the few school districts in North America (the Coquitlam, B.C. School District) that has continually expanding enrichment programs throughout its primary and secondary grades. The film examines how these programs stimulate the student's particular talents, and discusses some of the problems that gifted children face in the absence of such resources.	National Film Board of Canada

13. Gifted and Talented Multi-Media Kit	This filmstrip and audio-cassette program is one of the best vehicles for teacher in-service and parent education available today. It consists of three 2-part units: I. Identification of gifted and talented students, II. Curriculum alternatives for gifted and talented students, III. Social and emotional development of gifted and talented students. In addition to focusing on these highly significant content areas, there is a presentation format, which lends itself admirably to workshop situations. Main points for discussion are identified and supplementary print materials are provided which allow for hands-on, participatory activities. Many of these materials are also extremely useful classroom aids to identification, program design, implementation, and evaluation.	Council for Exceptional Children, Dept. 1014 1920 Association Drive Reston, Virginia 22091 $234.50 Stock No. 228 * May also be available at local public libraries, colleges, universities or regional film centres.
14. With Eyes Wide Open 58 min. Color/Sound 1984 Richard Wawro, Artist	The film's focus is an exploration of the creative process itself and the potential for creativity that exists inside every person. WITH EYES WIDE OPEN reveals the nurturing environments that have enabled Richard's spirit, his talent, and his intelligence to grow and develop. It is as though deep within him that spirit is clamouring to be free. Throughout history, gifted and retarded alike have been systematically subjected to limitation of their potential by labels, classification, and standardization. But Richard Wawro's life and work provide abundant evidence of the quality and persistence of the human, creative spirit. In the film as Richard is shown putting behind him one after another of the limitations that have been placed upon him, one can only wonder what his next step toward the light will be.	Creative Learning Environment, 507 Park Boulevard, Austin, Texas, 78751 (512) 454-4489

Appendix C

Selected Journals, Newsletters, and Magazines: A Resource Listing

Selected Journals, Newsletters and Magazines: A Resource Listing

1. Gifted Education Newsletter - A monthly newsletter for parents and educators.

   Editor . . . . . . James Alvino
   Address . . . . . P.O. Box 115
   Sewell, New Jersey 08080

2. Gifted/Creative/Talented - A magazine published five times a year for parents and teachers of gifted, creative, and talented children.

   Chart Your Course - A quarterly by and for gifted, creative, and talented children.

   Editor/
   Publisher . . . . Marvin Gold
   Address . . . . . G/C/T
   P.O. Box 66654
   Mobile, Alabama 36606

3. Journal of Creative Behaviour - A quarterly publication of the Creative Education Foundation.

   Editor . . . . . . Angelo M. Biondi
   Address . . . . . Journal of Creative Behaviour
   1300 Elmwood Avenue
   Buffalo, New York 14222

4. The American Association for the Gifted - The first voluntary, non-profit organization in the United States devoted exclusively to the needs of gifted, talented, and creative children.

   Vice-President
   and Executive
   Director . . . . . Marjorie L. Craig
   Address . . . . . 15 Gramercy Park
   New York, New York 10003
   (212) 473-4266

5. The Association for the Gifted (TAG) - A division of the Council for Exceptional Children. Journals received with membership: Exceptional Children, Teaching Exceptional Children, Journal for the Education of the Gifted (JEG).

   Address . . . . . The Council for Exceptional Children
   1920 Association Drive
   Reston, Virginia 22091
   1-800-368-3293

6. National Association for Gifted Children (NAGC).

   Executive
   Director . . . . . Joyce Juntune
   Publication . . The Gifted Child Quarterly
   Address . . . . . NAGC Membership
   5100 N. Edgewood Drive
   St. Paul, Minnesota 55112

7. National/State Leadership Training Institute on the Gifted and Talented.

   Publication . . N/S LTI Bulletin
   Director . . . . . Irving S. Sato
   Address . . . . . 316 W. Second Street, Suite PH-C
   Los Angeles, California 90012
   (213) 489-7470

8. Georgia Supporters for the Gifted - A statewide non-profit organization developed to "promote high achievement of the gifted by supporting the improvement of their education."

   Address . . . . . Mrs. Ruth Cowan
   Gwinnett County Schools
   Oakland Centre
   950 McElvaney Lane
   Lawrenceville, Georgia 30245
   (404) 963-6713

9. Office of Gifted and Talented.

   Address . . . . . Mr. Frank Robinson
   Gifted and Talented Specialist
   Room 1725, A Donahoe Building
   400 Maryland Ave., S.W.
   Washington, D.C. 20202
   (202) 245-2547

10. ITYB (Intellectually Talented Youth Bulletin).

Address . . . . . Box 1360
Johns Hopkins University
Baltimore, MD 21218

11. Roeper Review - A quarterly journal focusing on philosophical, moral, and academic issues which relate to the lives and experiences of the gifted and talented. Its intent is to present various positions and approaches relating to these issues; and to translate them into practice in the home, school, and community.

Editor . . . . . . Ruthan Brodsky
Address . . . . . Roeper Review
P.O. Box 329
Bloomfield Hills, Michigan 48013

12. Torrance Center for Gifted, Creative, and Future Studies - A centre developed to recognize the work of Dr. E. Paul Torrance. Through the centre numerous activities are held for parents, educators, researchers, and gifted students.

Publication . . Torrance Center Bulletin
Advisor . . . . . Dr. E. Paul Torrance
Director . . . . . Dr. Mary M. Frasier

Subscription/Membership

a. Friends of the Torrance Center Membership (includes Certificate of Membership, discounts on activities and future publications, and quarterly issues of the Torrance Center Bulletin).
b. Friends of Torrance Center Organizational or School Membership (includes Certificate of Membership, discounts on activities and future publications, and quarterly issues of the Torrance Center Bulletin).
c. Subscriptions to the Torrance Center Bulletin.

Address . . . . . Torrance Center
Department of Educational Psychology
325 Aderhold
University of Georgia
Athens, Georgia 30602

13. LTI Bulletin - Published by the National/State Leadership Training Institute for the Gifted and Talented.

Address . . . . . Ventura County
Superintendent of Schools
535 East Main Street
Ventura, CA 93009

14. GATE (Gifted International) - Journal of the World Council for Gifted and Talented Children.

Address . . . . . Committee for Culture
17 Stambalusky Street
Sofia, Bulgaria

15. Gifted Child Quarterly - Published by the National Association for Gifted Children and included with membership dues, edited by John C. Gowan and Joyce Juntune.

Address . . . . . 217 Gregory Drive
Hot Springs, AR 71901

16. Gifted/Talented Education - Edited by Rudolph Pohl.

Address . . . . . P.O. Box 533
Branford, CT 06405

17. Challenge — Reaching and Teaching the Gifted Child.

Address . . . . . Good Apple, Inc.
Box 299
Carthage, Illinois 62321

18. Human Intelligence International Newsletter.

Address . . . . . Oakland University
544 O'Dowd Hall
Rochester, Michigan 48063

19. Footnotes. Future Problem Solving Program.

Address . . . . . c/o Coe College
Cedar Rapids, Iowa 52402

Appendix D

Sample Peer Nomination Form

Peer Identification of Creativity — Elementary Level

Pretend our class found a kitten on the playground.

A. Which three students would be most likely to think up lots of names for the kitten?

1. ____________________ 2. ____________________ 3. ____________________

Which three would make up the most unusual names?

1. ____________________ 2. ____________________ 3. ____________________

Which three probably would come up with the name we would finally decide on?

1. ____________________ 2. ____________________ 3. ____________________

B. Which three students would be most likely to write a story about the kitten?

1. ____________________ 2. ____________________ 3. ____________________

C. Which three students would probably think up different ways to teach the kitten a trick?

1. ____________________ 2. ____________________ 3. ____________________

D. If we design a collar for our kitten, which three students would probably come up with the most designs for a collar?

1. ____________________ 2. ____________________ 3. ____________________

The fanciest collar?

1. ____________________ 2. ____________________ 3. ____________________

The most unusual collar?

1. ____________________ 2. ____________________ 3. ____________________

E. Which three students would make the most suggestions of what could be done with the kitten?

1. ____________________ 2. ____________________ 3. ____________________

F. Which three would give the teacher the most reasons for allowing the kitten to come into the classroom?

1. ____________________ 2. ____________________ 3. ____________________

Peer Identification of Creativity — Junior High School Level

Think about the students in our class. Answer the following questions as completely as possible.

A. Which three students would have the most ideas and solutions to problems?

1. ____________________ 2. ____________________ 3. ____________________

B. Which three students are a lot brighter than most people think?

1. ____________________ 2. ____________________ 3. ____________________

C. Which three students have the most fun using their imagination about situations and things?

1. ____________________ 2. ____________________ 3. ____________________

D. Which three students are best in art?

1. ____________________ 2. ____________________ 3. ____________________

E. Which three students are most likely to ask questions about things?

1. ____________________ 2. ____________________ 3. ____________________

F. Which three students are most likely to read books?

1. ____________________ 2. ____________________ 3. ____________________

G. Which three students are smarter in mathematics?

1. ____________________ 2. ____________________ 3. ____________________

H. Which three students are smarter in English?

1. ____________________ 2. ____________________ 3. ____________________

I. Which three students are the smartest in all subject areas?

1. ____________________ 2. ____________________ 3. ____________________

Peer Identification of Creativity — High School Level

Think about the students in our class. Answer the following questions as best you can.

A. Which three students are the most curious about all sorts of things?

1. ____________ 2. ____________ 3. ____________

B. Which three students generate the most ideas and solutions to issues and problems?

1. ____________ 2. ____________ 3. ____________

C. Which three students don't appear to care what others think about what they say?

1. ____________ 2. ____________ 3. ____________

D. Which three students like to take chances?

1. ____________ 2. ____________ 3. ____________

E. Which three students have the most enjoyment imagining about situations and things?

1. ____________ 2. ____________ 3. ____________

F. Which three students express the most sensitivity to the feeling and concerns of others?

1. ____________ 2. ____________ 3. ____________

G. Which three students enjoy jokes and puns?

1. ____________ 2. ____________ 3. ____________

H. Which three students are aware of and enjoy the beauty in the world around them?

1. ____________ 2. ____________ 3. ____________

I. Which three students are not concerned with minute details?

1. ____________ 2. ____________ 3. ____________

J. Which three students do not care if others think of them as being unusual or different?

1. ____________ 2. ____________ 3. ____________

K. Which three students are real "characters"?

1. ____________ 2. ____________ 3. ____________

L. Which three students are likely to question statements that are not backed up by research or logic?

1. ____________ 2. ____________ 3. ____________

Appendix E

Selected Test Instruments for use with the Gifted and Talented

Introduction

The functions of standardized instruments in education are multi-faceted; however, one could sum up their use by stating that they should help in decision-making. With this in mind, many different factors should be considered in selecting a test such as, purpose, specialized training for administration, time, scoring, cost, interpretation, reliability, and validity.

The following is a description of some suggested test instruments organized according to categories of giftedness. These instruments may be used to assess students for placement in programs/services for the gifted and talented and to provide useful information for program design and review. Some of the test instruments described require specialized training and should only be used by qualified examiners.

Category of Giftedness

I. General Intellectual Ability

Title of Instrument	Age (Years)	Description	Scores	Specialized Training Required		Time (min.)	Publisher or Source
				Yes	No		
A. Individual Tests							
1. Wechsler Scales a. Wechsler Adult Intelligence Scale (WAIS-R)	16-64	A number of subtests are used to obtain intellectual functioning in verbal and performance areas. Widely used instrument	Verbal I.Q. Performance I.Q. Full Scales I.Q.	X		60-90	Psychological Corporation
b. Wechsler Intelligence Scale for Children - Revised (WISC-R)	6-16	A number of subtests are used to obtain intellectual functioning in verbal and performance areas. Widely used instrument.	Verbal I.Q. Performance I.Q. Full Scales I.Q.	X		60-90	Psychological Corporation
c. Wechsler Primary and Preschool Scale of Intelligence (WPPSI)	4-6½	A number of subtests are used to obtain intellectual functioning in verbal and performance areas. Widely used instrument.	Verbal I.Q. Performance I.Q. Full Scales I.Q.	X		60-90	Psychological Corporation
2. Stanford Binet Intelligence Scale	2-Adult	Assesses a range of skill development in a number of areas, including verbal. Primarily it is a measure of visual and verbal memory and nonverbal areas.	Mental Age I.Q.	X		30-90	Houghton-Mifflin Company

Title of Instrument	Age (Years)	Description	Scores	Specialized Training Required		Time (min.)	Publisher or Source
				Yes	No		
3. Kaufman A-B-C	2.5-12.5	Measures intellectual functioning and acquired knowledge.	16 Subtests I.Q. Score Standard Score Percentage Rank Age Equivalents	X		30-50 pre-schoolers 50-80 older children	Psycan American Guidance Service
4. Progressive Matrices (Revised)	5 and over	A non-verbal test of reasoning ability based on figural material.	Percentiles	X		60	Psychological Corporation
5. Peabody Picture Vocabulary Test (PPVT)	2½-18	A quick test of intellectual functioning. Only moderately reliable.	Mental Age Deviation I.Q.		X	10-15	American Guidance Service
6. Slosson Intelligence Test (SIT)	2 weeks and over	A brief individual screening test. It is an adaptation of items from the Stanford-Binet. Validity is suspect.	Mental Age I.Q.		X	30	Slosson Educational Publications Dublin, N.H. 03444
7. McCarthy Scales of Children's Abilities	2½-8½	Provides a general lead of intellectual functioning and a profile of abilities. Low ceiling for children at the upper end of age range.	6 Subtests General Cognitive Index (GCI)	X		45-60	Psychological Corporation

Title of Instrument	Age (Years)	Description	Scores	Specialized Training Required		Time (min.)	Publisher or Source
				Yes	No		
8. **Woodcock-Johnson Battery of Ability Tests**	5-18	**Part One:** **Tests of Cognitive Ability** Consists of 12 subtests, but these may be administered or interpreted in clusters, according to the kind of information desired. Cluster scores which may be desired are as follows: 1. Broad cognitive ability, 2. Verbal ability, 3. Reasoning, 4. Perceptual speed, 5. Memory, 6. Reading aptitude, 7. Mathematics aptitude, 8. Written language aptitude, 9. Knowledge aptitude. **Part Two:** **Tests of Achievement** Consists of 10 subtests, 7 of which pertain to reading, mathematics, and written language; the remaining 3 subtests provide information regarding the subject's knowledge of science, social studies, and humanities. **Part Three:** **Tests of Interests Level** Consists of 5 subtests measuring preference for participating in various scholastic and non-scholastic forms of activity.					

Title of Instrument	Age (Years)	Description	Scores	Specialized Training Required		Time (min.)	Publisher or Source
				Yes	No		
B. Group Tests							
1. Test of Cognitive Skills (TCS)	7-18	Consists of 4 subtests, namely, sequences, analogies, memory, and verbal reasoning.	Percentiles (Grade and age) Stanine (G) Cognitive Skills Index (CSI)		X	47-53	McGraw-Hill Ryerson Ltd.
2. Otis-Lennon Mental Ability Test	5-22	Seeks to test verbal educational aspects of mental abilities. Predictive of scholastic success.	Deviation I.Q. Percentiles Stanines		X	30	Harcourt, Brace & World
3. AH5-Group Test of High-Grade Intelligence	13-Adult	Consists of two parts: the first comprising verbal and numerical problems; the second comprising problems in a diagrammatic form (e.g., analogies).	Percentiles	X		60-70	NFER Berks, England
4. The Oregon Academic Ranking Test (OART)	9-13	Measure of academic brightness of students as demonstrated in verbal, logical, mechanical, and creative thinking areas.	Percentiles	X		30	Western Psychological Services
5. Ross Test of Higher Cognitive Processes	10-12	Designed to measure ability in analysis, synthesis, and evaluation according to Bloom's Taxonomy of Educational Objectives.	Percentiles		X	50	Academic Therapy Publications

Title of Instrument	Age (Years)	Description	Scores	Specialized Training Required		Time (min.)	Publisher or Source
				Yes	No		
6. **Canadian Cognitive Abilities Test (CCAT) (replaces Lorge-Thorndike)**	5-18	10 subtests measure cognitive functioning in three areas: verbal, quantitative, and spatial (non-verbal).	Standard Scores Percentile Ranks Stanines		X	98	Nelson Canada Scarborough, Ontario M1K 5G4

II. Specific Academic Aptitude

Title of Instrument	Age (Years)	Description	Scores	Specialized Training Required		Time (min.)	Publisher or Source
				Yes	No		
A. Individual Tests							
1. **Gates-MacGinitie Reading Tests**	5-18	Measures ability in two key components of reading: namely, vocabulary and comprehension.	Vocabulary, comprehension and total		X	120 (8 subtests)	Nelson (Canada) Ltd., Don Mills, Ontario
2. **Key Math Tests**	5-13	Measures important arithmetic concepts.	15 scores involving content, operations, applications	X		30	American Guidance Service
3. **Peabody Individual Achievement Test (PIAT)**	5-18	Provides a wide range of screening measure of achievement in the areas of mathematics, reading, spelling, and general information.	6 scores - math, reading comprehension, spelling, general information, total		X	30-40	American Guidance Service

Title of Instrument	Age (Years)	Description	Scores	Specialized Training Required		Time (min.)	Publisher or Source
				Yes	No		
B. Group Tests							
1. Canadian Tests of Basic Skills (CTBS)	5-18	Designed to provide information on the status of student development in the basic skill areas. The majority of the subtests relate to language arts and arithmetic skills.	Grade Equivalents Percentiles		X	279 (4 sessions)	Nelson Canada Ltd.
2. Canadian Achievement Test (CAT)	6-19	Consists of 12 subtests: vocabulary, reading, spelling, language mechanics, language expression, total language, math computation, math concepts, total math battery, and reference skills.	Grade Equivalents Percentiles Stanines		X	190-208 varies with level	McGraw-Hill Ryerson Ltd.
3. Metropolitan Achievement Test (MAT)	6-18	Measures student performance in reading, mathematics, and language.	Grade Equivalents Percentiles Others		X	303 (in sessions)	Harcourt, Brace & World
4. Stanford Achievement Test (SAT)	6-18	Measures performance in vocabulary, reading, spelling, comprehension, and arithmetic skills.	Grade Equivalents Percentiles Others		X	227-316 (in sessions)	Harcourt, Brace & World
5. Differential Aptitude Test (DAT)	14-18	Designed as a multiple aptitude battery. Each form (S, T) has 8 subtests: verbal reasoning, numerical ability, abstract reasoning, clerical speed and accuracy, mechanical reasoning, spatial relations, spelling, and language usage.	Percentiles Stanines		X	181	Psychological Corporation

Title of Instrument	Age (Years)	Description	Scores	Specialized Training Required		Time (min.)	Publisher or Source
				Yes	No		
C. Teacher Screening Devices							
1. Scales for Rating the Behavioral Characteristics of Superior Students	5-18	Series of rating scales each comprising 10 items describing behaviors associated with area under consideration. May be used singly or collectively; serves to provide framework for teacher's judgement of learning motivation, creativity, leadership, musical/acting talent.	Numerical rating in ten talent areas		X	Not indicated	Creative Learning Press P.O. Box 320 Mansfield Centre, CT 06250
2. Reservoir Model for Identification of the Gifted and Talented	5-18		A general screening process		X	Not indicated	Gowan, J.C. ''How to Identify Students for a Gifted Child Program,'' Gifted Child Quarterly, XIX, (3), 1975, 260-263

III. Creative or Productive Thinking

Title of Instrument	Age (Years)	Description	Scores	Specialized Training Required		Time (min.)	Publisher or Source
				Yes	No		
A. Individual Tests							
1. Creativity Tests for Children (CTC)	10-12	Tests are adapted from Guilford's divergent production abilities. Largely a research instrument.	10 tests - measures Guilford's divergent production abilities.		X	80	Sheridan Psychological Services

Title of Instrument	Age (Years)	Description	Scores	Specialized Training Required		Time (min.)	Publisher or Source
				Yes	No		
2. Remote Associates Tests (RAT)	9-16 and Adults	Assesses the specific type of verbal agility required in making the kinds of associations found in many 'word games'.	Measures ability to think creatively.		X	40-45	Houghton-Mifflin Company
B. Group Tests							
1. Torrance Tests of Creative Thinking	5-50 +	Assesses four important mental characteristics: fluency, flexibility, originality, and elaboration. In addition, significant creative strengths are assessed.	Verbal and pictorial scores in fluency, flexibility, originality, and elaboration.		X	Verbal - 60 Figural - 45 (can be given without time constraints)	Scholastic Testing Services 480 Meyer Rd. Bensenville, Il.
2. The Adjective Checklist	9-16 and Adults		24 scores related to creativity.		X	15-20	Consulting Psychologists Press, Inc.
3. Creativity Assessment Packet a. Test of Divergent Thinking	8-18	Measures four creativity factors and uniqueness of titles.	5 subtest scores, mean scores and standard deviations		X	20-25	D.O.K. Publishers, Inc.
b. The Williams (Rating) Scale	8-18	50 items that purport to measure 8 thinking and feeling factors of the Williams model.	Weighted raw score 100		X	20	D.O.K. Publishers, Inc.

IV. Leadership Ability

Title of Instrument	Age (Years)	Description	Scores	Specialized Training Required		Time (min.)	Publisher or Source
				Yes	No		
A. Teacher Screening Devices							
1. Leadership Scale (in Leadership Unit) Gallagher et al.	6-60	A sample 5-point scale that purports to measure the significant factors of leadership: cooperation, sensitivity to feeling of others, friendliness, and self-confidence.	5-point scale		X	5	Trillium Press
2. Leadership Scale of the Scales for Rating the Behavioral Characteristics of Superior Students		Identifies behaviors that are often factors associated with leadership. Teacher rates student on behaviors on a 4-point scale.			X	Refer to Specific Academic Aptitude Section.	

V. Visual and Performing Arts

Title of Instrument	Age (Years)	Description	Scores	Specialized Training Required		Time (min.)	Publisher or Source
				Yes	No		
A. Individual Tests							
1. Music: Seashore Measure of Musical Talents, Revised Edition	4-16	6 scores - pitch, loudness, rhythm, time, timbre, tonal measure	Scribbling, doodling and imagery		X	60	Psychological Corporation

Title of Instrument	Age (Years)	Description	Scores	Specialized Training Required		Time (min.)	Publisher or Source
				Yes	No		
2. Art: Horn Art Aptitute Inventory	12-16 and Adult		Scribbling, doodling and imagery		X	50	Horn-Stoeltling Co. 1350 South Kostner Avenue, Chicago, Ill. 60623
3. Meier Art Tests	7-16 and Adult	Made up of two tests: 1. art judgement, and 2. aesthetic perception.	Percentile norms for art judgement aesthetic perception		X	60	Bureau of Educational Research and Service University of Iowa Iowa City, Iowa 25240
4. Iowa Test of Music Literacy	10-18	Achievement battery designed to measure tonal and rhythmic perception and the ability to conceptualize and use music notations.				90	Bureau of Educational Research and Service
5. The Wilson Cognitive Instruments	6-12	Student expresses opinions and attitudes on ability, artists, time, and imagination. Test also requires drawing tests.			X	Not specified	Brent & Marjorie Wilson, Dept. of Art Education Pennsylvania State University University Park, PA 16802
6. National Assessment of Art Test (Wilson)	9-17	Series of questions and tasks which provide useful guidelines for studying student art work at three age levels: 9, 13, and 17. Comprehensive in nature, but may be used selectively for specific purposes.		X		Not specified	Brent Wilson Dept. of Art Education Pennsylvania State University University Park, PA 16802

VI. Psychomotor Ability

Title of Instrument	Age (Years)	Description	Scores	Specialized Training Required		Time (min.)	Publisher or Source
				Yes	No		
A. Individual Tests							
1. Performance Scale I.Q.'s of the Wechsler Scale		Assesses attentiveness to visual detail, abstract non-verbal reasoning, and psychomotor speed.	Performance I.Q. Scales scores 0-20 for each subtest	X		Refer to General Intellectual Ability (Individual Tests)	
B. Group Tests							
1. Guilford Zimmerman Aptitude Survey	9-16 and Adults		7 aptitude areas investigated	X		163 (7 tests)	Sheridan Psychological Service
2. Differential Aptitude Tests (DAT)	14-18	Frequently used in vocational counselling as many of the aptitude tests are career-related, e.g., clerical speed and accounting, mechanical, verbal, numerical skills.	Stanines Percentiles	X		240 (2-6 sessions)	Psychological Corporation

Appendix F

Sample Interest Inventory - Elementary

Interest Inventory — Elementary

Name ______________________ Age __________

School ______________________ Grade __________

Boy or Girl ______________________ Date __________

Place a ''G'' by all the things you are good or strong at and a ''P'' by all the things you are poor at. (Anything you don't do — leave blank.)

____ science
____ math
____ reading
____ English
____ social studies
____ spelling
____ creative writing
____ handwriting
____ music
____ foreign languages
____ art
____ sports
____ being a leader
____ solving problems
____ acting

I think my three most important strengths are:

1. ______________________
2. ______________________
3. ______________________

Three areas I want to improve are:

1. ______________________
2. ______________________
3. ______________________

This is how I look at the beginning of the school year.

Things I don't like.

My Hobbies and Interests

1. I belong to the following clubs. Place a check (✓) by those you belong to and add any which are not listed.

____ Brownies
____ Sports
____ Gymnastics
____ Soccer
____ Cubs
____ Hockey
____ Basketball
____ School Orchestra
____ School Band
____ School Chorus
____ Chess Club
____ Student Council
____ Church Group
____ Swimming
____ Skating
____ Others ______________________________

____

2. I like to collect ______________________________

____

3. If I could have an hour a day to study anything I wanted, I would choose:

____

4. I think it would be fun to learn about ______________________________

5. The things I enjoy doing when I have time to spend just as I please:

at home ______________________________

at school ______________________________

with my friends ______________________________

with my family ______________________________

6. Outside of school I take lessons in ______________________________

____

How I Prefer to Work

Indicate your preference.

Getting Information By	Working	Sharing By
____ Researching ____ Listening to others ____ Viewing/Observing ____ Discussion ____ Experimenting ____ Reading	____ By myself ____ With a friend ____ With an adult ____ In a group ____ For a long period without interruption ____ For a short period of time	____ Creating models/displays ____ Speaking ____ Teaching ____ Writing

If I could change one thing about myself, it would be ____________________

because ____________________

____

If I could have any talent I wanted, I would choose ____________________

because ____________________

____

If I could make one wish for the world, it would be ____________________

because ____________________

____

When I grow up, I would like to be a ____________________

____

My Goals for the Year

Goals at Home

1. This year I would like to try to help out more at home by ____________________

2. A new hobby I would like to try this year is ____________________

3. I would like to try to become better at ____________________

4. Another goal of mine at home is ____________________

Goals at School

1. I would like to try to do better in the area of ____________________

2. This year I would like to read about ____________________

3. One study habit I would like to improve this year is ____________________

4. Another goal of mine at school is ____________________

What I Learned About Myself

1. Read page F-5. Then check (✓) one:

   I did ____ / did not ____ meet my goals.

2. I looked at my handwriting on page F-5. I think my writing is

   ______________________________ now.

3. I think I have improved this year in ______________________________

   ____

4. I was happy that I ______________________________

   ____

5. I still need to work extra hard on ______________________________

   ____

6. The one new thing I discovered about myself was ______________________________

   ____

   ____

7. This year I learned to ______________________________

   ____

8. If I could change one thing about myself, it would be ______________________________

   ____

Appendix G

Sample Diagnostic Inventory

*Diagnostic Inventory of Cognitive, Creative, and Affective Skills and Characteristics**

Name: ______________________________ **Date:** ________________

School: ______________________________ **Grade:** ____ **Age:** ____

Teacher Completing This Form: ______________________________

Please indicate by using the rating scale, the degree to which each student exhibits each of the skills and characteristics listed below:

1. if you have rarely or never observed this skill,
2. if you have observed this skill occasionally,
3. if you have observed this skill almost all of the time.

Cognitive		**Creative**		**Affective**	
I. Problem Identification					
Keen powers of observation	____	Sensitive to problems	____		
Interest in complex matters	____	Defines problems	____	Adjusts to new situations	____
Thinks abstractly	____			Sensitive to social values	____
II. Information Gathering (Fact and Feelings Finding)					
Keen powers of observation	____	Questioning attitude	____	Risk taker	____
Makes inferences	____				
III. Hypotheses Information (Idea Seeking)					
Combines ideas	____	Vivid imagination	____	Risk taker	____
		Tolerance for ambiguity	____		
		Has many ideas	____		
		Sees things in varied ways	____		
		Offers unique or unusual ideas	____		
		Concerned with adapting, improving, modifying	____		
		Ability to make hypotheses	____		
IV. Hypotheses Testing (Solution Findings)					
Makes judgements and decisions	____				
Reasons things out	____				
V. Decision-Making					
Recognizes relationships, cause/effect	____	Sees implications or consequences	____	Sensitive to social values	____
Reasons things out	____	Adds details	____		
Plans and organizes information	____				
Transfers learnings to new situation	____				
Generalizes	____				

Anecdotal Comments

Ability to concentrate: ______________________________

____

Advanced vocabulary: ______________________________

____

Good memory: ______________________________

____

Ability to find subtle humor, paradox, or discrepancies: ______________________________

____

Self-confidence: ______________________________

____

Ability to influence others: ______________________________

____

Ability to work independently: ______________________________

____

Ability to communicate effectively: ______________________________

____

Enthusiasm: ______________________________

____

Task commitment: ______________________________

____

Persistence: ______________________________

____

Ability to assume and discharge responsibility: ______________________________

____

Additional Information:

A. Parents, peers, self, other school personnel: ____

____

____

B. Past records: ____

____

____

C. Summary: ____

____

____

D. Recommendations: ____

____

____

---

* ***Permission granted to use the inventory by (Mrs.) Madge Craig,***
Resource Teacher - Primary and Enrichment
Board of School Trustees
1401 - 15 Street
Vernon, British Columbia V1T 8S8

Appendix H

Student Art Interest Inventory

Student Art Interest Inventory

Name: ______________________________ **Date:** ____________

School: ______________________________ **Age:** ______ **Grade:** ______

Interest

1. When I do art for my own pleasure, I especially like to draw or paint the following things:

   a. ______________________________

   b. ______________________________

   c. ______________________________

2. I would like to learn how to draw or paint the following things:

   a. ______________________________

   b. ______________________________

   c. ______________________________

3. My favorite art tools or materials are:

   a. ______________________________

   b. ______________________________

   c. ______________________________

4. Art materials that I have not used but would like to learn how to use are the following:

   a. ______________________________

   b. ______________________________

   c. ______________________________

Experience

At home or at school, I have had a chance to explore the following art activities (check all of the activities that you have tried).

1. Drawing with:
   - a. wax crayons or oil pastels . . . . ______
   - b. colored chalk or chalk pastels . . . . ______
   - c. charcoal . . . . ______
   - d. brushes . . . . ______
   - e. pencils . . . . ______
   - f. felt pens . . . . ______
   - g. pen and india ink . . . . ______

2. Drawing or painting with WAX on:
   - a. paper . . . . ______
   - b. fabric . . . . ______

3. Drawing:
   - a. from imagination . . . . ______
   - b. still life (bicycles, fruit, bottles) . . . . ______
   - c. live models (people) . . . . ______
   - d. from nature (outdoor scenes or objects) . . . . ______
   - e. from photographs . . . . ______

4. Painting with:
   - a. water colors . . . . ______
   - b. tempera blocks . . . . ______
   - c. acrylics . . . . ______
   - d. ink . . . . ______

5. Printmaking with:
   - a. cardboard cutouts . . . . ______
   - b. linoleum . . . . ______
   - c. vegetables . . . . ______
   - d. string . . . . ______
   - e. found objects . . . . ______

6. Making three dimensional forms from:
   a. clay ______
   b. plaster ______
   c. wire ______
   d. toothpicks or wood ______
   e. paper or cardboard ______
   f. papier-mache ______
   g. fabric (soft sculpture) ______

7. Weaving on:
   a. cardboard looms ______
   b. frame looms ______
   c. salish looms ______
   d. circular hoops ______
   e. natural forms (twigs, branches, bark) ______

8. Weaving with:
   a. paper ______
   b. wool and string ______
   c. fabric strips, ribbon ______
   d. natural fibres (grass, raffia) ______

9. Decorating fabric by:
   a. tie and dye ______
   b. batik (wax and dye) ______
   c. block printing ______
   d. stenciling ______
   e. stitchery ______

10. Exploring ideas through:
   a. collage ______
   b. lettering ______
   c. photography ______
   d. cartooning ______
   e. film animation ______

11. Learning about:
   a. the arts of other cultures ______
   b. architecture of other countries ______
   c. famous artists ______
   d. styles of art (abstract, surealism) ______

12. Visiting:
   a. a local museum . . . . ______
   b. art displays and galleries . . . . ______
   c. artists' studios . . . . ______

Goals for the Year:

If I could do any five things in art this year, I would choose to do the following.

a. ____

____

b. ____

____

c. ____

____

d. ____

____

e. ____

____

Appendix I

Sample Forms of Student's Independent Study Contract, Study Log, and Self-Evaluation

Student's Independent Study Contract

Name: ______________________________ **Date:** ______________

1. I would like to do an in-depth study of ______________________________

____

____

____

2. I have chosen this topic because ______________________________

____

____

____

3. Some of the questions I want to answer are ______________________________

____

____

____

____

4. I will collect information in the following ways: (choose at least 4)

____ encyclopedias
____ books
____ magazines
____ newspaper articles
____ filmstrips, film, records
____ museums
____ interviews with experts
____ community agencies
____ experiments
____ my own original research (explain)

____

____ other (explain)

____

5. I will share my information with others in the form of ______________________________

____

____

____

6. I will complete my study by ____

____

____

____

____

____

____

____

____

____

____

Student's Independent Study Log

Name: ____________________

Topic of Study: ____________________

Date Begun: ____________________ **Date Due:** ____________________

Date	What I Did	Important Data	Source	The Next Step

Student's Independent Study Self-Evaluation

Name: ______________________________ **Date:** ______________

Topic: ____

1. List the most important facts/findings you discovered.

2. Summarize what you discovered or proved as a result of your study.

3. Tell how these results can be used by others.

4. Isolate one finding from your study. Remove it, or change it, and explain how it would affect the results.

5. Rate yourself on how close you came to meeting your original goals for this study. (Did you answer the questions you asked? How would you approach this study if you were starting over, knowing what you now know.)

____

____

____

____

6. What new questions did your study raise?

____

____

____

____

Appendix J

Sample Questionnaires for Parents, Teachers, and Students

Parent Evaluation

Dear Parents:

It is highly important to have your opinion of the program as part of the program evaluation. Please fill out the following questionnaire. You are strongly encouraged to make comments following each of the questions.

Parent Evaluation of Pupil Skill Development

Will you please think of your child at the present time in comparison to before he or she was enrolled in the program. As a result of participation in the program, please rate your child on the following items. You may have difficulty in responding to some of the items. Please make the best estimate that you can.

a = much less **b** = less **c** = about the same **d** = more **e** = much more

1. Ability to think things through . . . . ______
2. Ability to see relationships . . . . ______
3. Has the liking and respect of other pupils . . . . ______
4. Ability to judge the usefulness of facts . . . . ______
5. Ability to get along well with teachers . . . . ______
6. Enjoyment of learning . . . . ______
7. Curiosity about learning new things . . . . ______
8. Ability to accept responsibility . . . . ______
9. Opportunity to make things, experiment and use ideas . . . . ______
10. Knowledge of personal strengths and weaknesses . . . . ______

General Questions

Please check in space provided.

	Yes	No	Neutral
1. Were you provided with enough information about why your child was selected for the program?	____	____	____
2. Were you provided with enough information about the objectives of the program?	____	____	____

Comments (1): ______________________________________

____

Comments (2): ______________________________________

____

3. Were you provided with enough information about the activities and experiences that your child pursues in the program? ___ ___ ___

Comments: ______________________________

____

4. Have you been offered sufficient opportunity to discuss your child's progress with the teacher? ___ ___ ___

Comments: ______________________________

____

5. Which of the following comments best express your child's general attitude about being in the program?

Enthusiastic ___
Positive ___
Indifferent ___
Negative ___

Comments: ______________________________

____

7. Which of the following statements best expresses your child's attitude toward the degree of challenge of the work in the program?

Very challenging ___
Somewhat challenging ___
Not at all challenging ___
No answer ___

Comments: ______________________________

____

Yes **No** **Neutral**

8. Has your child expressed a concern about missing work in the regular class or making up assignments because he or she is out of the room to attend the program? ___ ___ ___

Comments: ______________________________

____

9. Do you feel that regular classroom work missed because of participation in the program should be completed? ___ ___ ___

Comments: ______________________________

____

10. Has your child's regular classroom teacher(s) expressed any displeasure because your child has missed work because he or she is attending the program? If yes, please describe: ___ ___ ___

____

____

11. Has participation in the program helped your child?
Please explain: ____ ____ ____

____

____

12. Has participation created problems for your child?
Please explain: ____ ____ ____

____

____

13. Would you like to have the program continued? ____ ____ ____

Comments: ________________________________

____

Below are some possible models for enrichment/gifted programs. Please rank from 1 to 9. (One indicates your first choice.)

____ 1. **Enrichment in the regular classroom:**
Opportunity to explore materials and activities in areas of special interests and strengths.

____ 2. **Grade acceleration:**
Allowed to complete total grade program more quickly than the average student.

____ 3. **Advanced placement in university:**
Opportunity to obtain university credits.

____ 4. **Mentorship opportunities:**
Opportunity to work in professional fields under the guidance of experts.

____ 5. **Special schools:**
Students are grouped in special classes or schools where the approach to learning is commensurate with the student's learning style.

____ 6. **Pull out program:**
Opportunity for students to leave regular classroom for a portion of the week to receive instruction in independent study skills, creativity, etc.

____ 7. **Summer programs:**
Opportunity for in-depth experiences.

____ 8. **Special talent opportunities:**
Opportunity for intellectual challenges through courses such as logic, dance, gymnastics, etc.

____ **9. Other** (please specify):

____

____

General Comments:

____

____

____

____

Teacher Evaluation

Dear Classroom Teacher:

It is highly important to have your opinion of the program as part of the program evaluation. Please fill out the following questionnaire. You are strongly encouraged to make comments following each of the questions.

	Yes	**No**	**Neutral**
1. Do you feel that you have been given adequate information about the objectives of the program?	____	____	____

Comments: ____

____

	Yes	**No**	**Neutral**
2. Do you feel the program is meeting its objectives quite well for the students who are in it?	____	____	____

Comments: ____

____

	Yes	**No**	**Neutral**
3. Do you feel there is a need for a special program for bright children?	____	____	____

Comments: ____

____

4. Do you feel the students in the program are the ones who should be in it? ____ ____ ____

Comments: ____

____

5. Is the time spent by students in the program adequate? ____ ____ ____

Comments: ____

____

6. Do most students not in the program accept the program? ____ ____ ____

Comments: ____

____

7. Has participation of the children in the program been of benefit to you as a regular classroom teacher? ____ ____ ____

Comments: ____

____

8. Has participation in the program created problems for you as a regular classroom teacher? If yes, please identify: ____ ____ ____

Comments: ____

____

9. Has participation in the program created problems for the students involved from your class? ____ ____ ____

Comments: ____

____

10. Do you feel the program has a positive effect on the participating students' attitude in your class? ____ ____ ____

Comments: ____

____

11. Do you feel there is adequate two-way communication between you and the program teacher? ____ ____ ____

Comments: ____

____

12. Do you feel that regular classroom work missed because of participation in the program should be completed? ____ ____ ____

Comments: ____

____

Below are some possible models for enrichment/gifted programs. Please rank them from 1 to 9. (One indicates your first choice.)

____ 1. **Enrichment in the regular classroom:**
Opportunity to explore materials and activities in areas of special interests and strengths.

____ 2. **Grade acceleration:**
Allowed to complete total grade program more quickly than the average student.

____ 3. **Advanced placement in university:**
Opportunity to obtain university credits.

____ 4. **Mentorship opportunities:**
Opportunity to work in professional fields under the guidance of experts.

____ 5. **Special schools:**
Students are grouped in special classes or schools where the approach to learning is commensurate with the student's learning style.

____ 6. **Pull out program:**
Opportunity for students to leave regular classroom for a portion of the week to receive instruction in independent study skills, creativity, etc.

____ 7. **Summer programs:**
Opportunity for in-depth experiences.

____ 8. **Special talent opportunities:**
Opportunity of intellectual challenges through courses such as logic, dance, gymnastics, etc.

____ 9. **Other** (please specify):

____

____

General Comments:

____

____

____

____

Pupil/Student Self-Evaluation

Dear Pupil/Student:

It is highly important to have your opinion of the program as part of the program evaluation. Please fill out the following questionnaire. You are strongly encouraged to make comments following each of the questions.

	Yes	No	Neutral
1. Do you think the program has improved your ability to think things through for yourself?	____	____	____

Comments: ____

____

	Yes	No	Neutral
2. Has being in the program increased your interest in school?	____	____	____

Comments: ____

____

	Yes	No	Neutral
3. Has participation in the program helped your ability to see how things go together in a situation? (See relationships.)	____	____	____

Comments: ____

____

	Yes	No	Neutral
4. Do you feel the program has improved your ability to find information?	____	____	____

Comments: ____

____

	Yes	No	Neutral
5. Do you feel the program has improved your ability to work well by yourself?	____	____	____

Comments: ____

____

	Yes	No	Neutral
6. Do you feel the program has improved your relationship with other students? If yes, please explain:	____	____	____

Comments: ____

____

7. Has the program improved your ability to judge the usefulness of facts? ____ ____ ____

Comments: ______________________________

____

8. Has the program improved your ability to get along with your teacher(s)? ____ ____ ____

Comments: ______________________________

____

9. Has the program improved your ability to judge how to get along with your teacher(s)? ____ ____ ____

Comments: ______________________________

____

10. Has the program improved your enjoyment of learning? ____ ____ ____

Comments: ______________________________

____

11. Has the program improved your knowledge of arithmetic, spelling, and other basic skills? ____ ____ ____

Comments: ______________________________

____

12. Has participation in the program increased your curiosity to learn new things? ____ ____ ____

Comments: ______________________________

____

13. Has being in the program improved your ability to accept responsibility? ____ ____ ____

Comments: ______________________________

____

14. Has the program provided you with opportunities to make things, experiment, and use ideas? ____ ____ ____

Comments: ______________________________

____

15. Has participation in the program improved your knowledge of your strengths and weaknesses? ____ ____ ____

Comments: ______________________________

____

16. Do you feel you spend enough time in the program? ____ ____ ____

Comments: ______________________________

____

17. Are you concerned about missing work in the regular classroom? ____ ____ ____

Comments: ______________________________

____

18. Do you feel that regular classroom work missed because of the program should be done? ____ ____ ____

Comments: ______________________________

____

19. Has the program been helpful to you? ____ ____ ____

Comments: ______________________________

____

20. Has participation in the program created any problems for you in school? ____ ____ ____

Comments: ______________________________

____

21. Would you like to continue in a group like the one you had this year? ____ ____ ____

Comments: ______________________________

____

22. What changes, if any, would you suggest?

Appendix K

Characteristics of Teachers of Gifted and Talented Students: A Rating Scale

Characteristics of Teachers of Gifted and Talented Students

A Rating Scale

Outstanding	Strong	Average	Weak	Totally Lacking	
5	4	3	2	1	Well-grounded in subject area
5	4	3	2	1	Understanding of child development
5	4	3	2	1	Curriculum development skills
5	4	3	2	1	Demonstrated innovative approaches to teaching
5	4	3	2	1	Familiarity with teaching strategies which engage the higher orders of intellectual activity (analysis, synthesis, evaluation)
5	4	3	2	1	Demonstrated high ability in the regular classroom
5	4	3	2	1	Intelligent
5	4	3	2	1	Flexible and creative
5	4	3	2	1	Self-confident
5	4	3	2	1	Sense of humor
5	4	3	2	1	Fairness and patience
5	4	3	2	1	Sympathy with the problems of gifted and talented children
5	4	3	2	1	Clear self-understanding and role perception
5	4	3	2	1	Willingness to go the extra mile
5	4	3	2	1	Enthusiasm for teaching and the subject matter
5	4	3	2	1	Willingness to be a ''facilitator'' rather than a ''director''
5	4	3	2	1	Love of learning
5	4	3	2	1	Ability to admit mistakes
5	4	3	2	1	Risk taker

Above is a checklist of characteristics desirable for a teacher of gifted children. Those persons whose responsibilities include teacher evaluation probably would be most qualified to respond to this checklist for each teacher. Those teachers who score consistently above average should be encouraged to work with such children.